Royal Commission on Matters of Health and Safety Arising from the Use of Asbestos in Ontario

COLLECTIVE BARGAINING AND ASBESTOS

DANGERS AT THE WORKPLACE

A Study Prepared By:

Morley Gunderson

Katherine Swinton

PENSATION

Study Series

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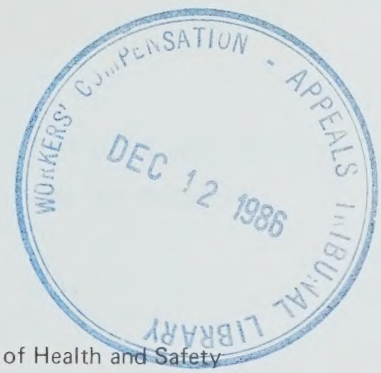

for

The Royal Commission on Matters of Health and Safety

Arising from the Use of Asbestos in Ontario

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COLLECTIVE BARGAINING AND ASBESTOS

DANGERS AT THE WORKPLACE

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The Royal Commission on Matters of Health and Safety
Arising from the Use of Asbestos in Ontario

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I. INTRODUCTION

Recent years have seen increased awareness and response to issues of occupational health and safety. Traditionally the focus has been on problems of safety rather than health, in part because safety issues were more tangible and concrete, especially when they involved specific events such as mining tragedies. Increasingly, however, attention is being paid to issues of occupational health, in part because of the rapid introduction of toxins and carcinogens into our general environment as well as our work environment. The focus of this study -- asbestos hazards at the workplace -- is an example of this type of potential health hazard.

Any policy response to the problem of occupational hazards must deal with the issues of identification, control, enforcement, and compensation. As they relate to occupational health and safety these issues can be dealt with through numerous mechanisms, including the private unregulated market, collective bargaining and regulation through legislation. These mechanisms are not mutually exclusive nor are they independent; hence, the key policy issue becomes one of deciding the appropriate balance among the various mechanisms, and the appropriate role each mechanism should play in each of the issues of identification, control, enforcement and compensation.

The purpose of this study is to analyse the collective bargaining mechanism both by itself and in its relationship to the private market mechanism and the legislative mechanism. The discussion will be at both the general level pertaining to occupational health hazards, and

at the specific level of asbestos dangers and collective bargaining in the Ontario workplace. An analysis of the collective bargaining mechanism is important because (as indicated subsequently in Part VI) the vast majority of Ontario workers who are exposed to asbestos hazards at the workplace are either covered by, or strongly affected by, a collective agreement.

The study begins with a brief description of asbestos dangers at the workplace, emphasizing the types of asbestos dangers and their expected impact on the health of workers. Part III deals with the private unregulated market (and the role of compensating wages) as a mechanism for dealing with occupational health and safety, and Part IV discusses why the market may fail to provide adequate health and safety. Part V deals with the collective bargaining mechanism in general terms emphasizing union preferences, the strike as an ultimate weapon, the issue of whether or not safety should be bargainable, and the pros and cons of the collective bargaining mechanism. Part VI deals with the collective bargaining mechanism in more specific terms, analysing the extent of collective bargaining coverage of Ontario workers exposed to asbestos, the nature of relevant provisions in collective agreements and the prevalence of arbitration awards over health issues.

Part VII deals with the various legislative and regulatory mechanisms -- their evolution and current problems. Part VIII discusses Ontario's current Occupational Health and Safety Act (Bill 70) in terms of its evolution, philosophy and content, with special attention being paid to the provisions dealing with joint committees, the draft regulation on asbestos and the right to refuse hazardous work. Because of its importance, the refusal of unsafe work is singled out for special analysis in

Part IX which deals with its rationale, evolution, procedures, pros and cons from the perspective of labour and management, the extent of its use in Ontario, and relevant legal interpretations. Part X provides a comparison of health and safety regulations in other Canadian jurisdictions as well as in the United States. The study concludes with a summary, some concluding observations and a discussion of research needs.

A subsequent study for the Commission, by Gene Swimmer and Sally Luce, will deal with worker perceptions about occupational health in the asbestos industry. Another study, by Michael Trebilcock and Carolyn Tuohy, will deal in more detail with the alterantive mechanisms for dealing with asbestos hazards, including the market mechanism and legislation, as well as collective bargaining. The central focus of our study, however, is on the collective bargaining mechanism itself, and how it relates to the other mechanisms.

II. ASBESTOS DANGERS AT THE WORKPLACE

Before discussing the alternative mechanisms for dealing with asbestos dangers at the workplace, a brief discussion of the types of dangers and their expected impact is in order. The discussion is not intended to be a comprehensive review of all the issues or a scientific, technical portrayal of the facts. Rather, its purpose is simply to highlight those facts that have the most important bearing on the collective bargaining response.

Types of Asbestos Dangers at the Workplace

Occupational exposure to asbestos can occur in various phases of the production and work process, beginning with the mining and milling of asbestos. Mining of asbestos not only involves the usual dangers of mining but also the added danger of exposure to a hazardous substance. The milling of asbestos from the raw ore containing the material also usually takes place at the mine site. During the 1970's three mines have produced asbestos in Ontario, only one of which is still in operation, and it employs only 15 workers (Ontario, Ministry of Labour, Submission, p.6). Approximately 80 percent of Canada's mining and milling is done in Quebec and Canada accounts for approximately 40 percent of world production (Reasons, Ross and Paterson, 1981, p.46).

Asbestos can be used as a direct input in the production of many products including building and insulation materials (sheeting as well as spraying), brake linings, cement pipes and ships. The use of raw asbestos as a direct input raises the possibility of heavy exposure

levels since loose asbestos fibres are involved; however, to the extent that the asbestos containers are labelled then workers may have knowledge of this high exposure.

Asbestos products can also be involved as an output used in the production of other goods. In such circumstances the raw asbestos itself is not handled but rather asbestos products are handled and used in the production of other goods. For example, automobile assemblers may handle brakes with asbestos linings, and pipe layers may handle pipes containing asbestos. In such circumstances the exposure time may be short and the exposure level small since loose asbestos fibre is not involved; however, the workers in such situations may be unaware of the nature of the material they are handling and they may be exposed to handling other hazardous substances.

Being used as building material, asbestos may also be part of the general work environment. In most circumstances exposure levels may be relatively low, as is the case for office workers in a building that was constructed using asbestos. In some cases, usually associated with the disintegration of the building materials or when the asbestos is exposed, the concentration levels may be higher. In fact, one of the first cases in Canada of workers' compensation for disease emanating from asbestos was for a janitor in Alberta whose exposure to asbestos probably came from carrying on normal janitorial functions in a plant where a sprayed-on asbestos ceiling was disintegrating (Reasons, Ross and Paterson,1981, p.49).

The demolition and disposal of products containing asbestos, especially buildings, can present a hazard since workers are often unaware that asbestos is involved, the particles are not confined and controlled (as

they may be in the production and handling process), and other hazardous substances may also be involved. In that sense, the uncontrolled removal and disposal of asbestos may involve more hazards than a controlled exposure.

Construction represents a special case with respect to exposure to hazards such as asbestos because of the nonfixed nature of the worksite. The hazard exposure may differ dramatically by worksite and it is not always possible for workers to be aware of all such hazards at each worksite. Monitoring the magnitude of asbestos dust may be difficult because it can vary considerably depending upon the circumstances of the job, and these circumstances vary considerably in nonfixed worksites. The fact that worker turnover is high and that workers change jobs constantly means that it is difficult to identify where they may have been exposed to hazards, especially those diseases with a long latency period. Employees in construction tend not to develop long-lasting relationships with their employers; hence, employers may not have an incentive to develop a reputation for providing a safe work environment (especially for uncertain hazards the effects of which may show up when the employee is working elsewhere). In situations where competitive bids are used, and uniform safe standards are not required, contractors may be tempted to ignore recognized safe procedures in order to win competitive bids. In addition, employees tend not to develop long-lasting work relationships with other specific employees; hence, information may not be easily transferred among employees. The temporary nature of most jobsites also means that permanent control policies also may be difficult.

These special characteristics of construction may pose unique problems with respect to the various mechanisms -- the market, collective bargaining and legislation -- to identify, control, enforce and compensate for work hazards. For example, the right to refuse work may be particularly relevant

in this sector so as to provide an immediate response to unique hazards as they arise. Unions may also be particularly effective as a more permanent institution to represent a flow of transitory workers. In essence, nonfixed worksites in general and construction in particular may pose special problems requiring special solutions.

Expected Impact on Health of Workers

Asbestos-related diseases include asbestosis, mesothelioma (a tumor of the lining surrounding the lung or stomach), and cancers of the lung, gastro-intestinal tract and larynx. Asbestosis can create health problems ranging from temporary, partial disability to permanent total disability; all the diseases can be fatal. Families of asbestos workers can also develop asbestos-related diseases. Asbestosis and mesothelioma are generally believed to arise only as a result of exposure to asbestos. Cancers of the lung, gastro-intestinal tract and larynx can arise from other causes as well as asbestos.

The expected impact of asbestos exposure on the health of workers is difficult to establish for numerous reasons. The latency period is long, in the neighborhood of 10-30 years, and this can make it difficult to identify when the debilitating exposure occurred. This is compounded by the fact that complex interractions and synergistic effects may be involved making it difficult to establish the fundamental "cause" of the disease or the relative contribution of the various contributing factors. Workers who are exposed to asbestos and who smoke, for example, are much more likely to develop asbestos-related diseases than are non-smokers who are similarly exposed to asbestos. As cited by Reasons, Ross and Paterson (1981, p.42): "Asbestos workers who don't smoke have an eight times greater risk of developing lung cancer than an unexposed population. However, asbestos workers who do smoke have a 92 times greater chance."

The relationship between exposure levels and the probability of contracting a disease (i.e., the dose-response relationship) is also unknown, as is the interaction of this relationship with other factors such as age. To the extent that the dose-response relationship is linear (i.e., equal increases in exposure at any exposure level generate equal increases in the probability of contracting the disease), then there would be no threshold level below which exposure could be considered absolutely safe (safe meaning that increased exposure would not increase the probability of contracting the disease).

The long latency period, complex interaction and unknown dose-response relationship also create problems with the relationship between asbestos hazards and the increasing introduction of new toxins and carcinogens into our general environment and work environment. The remark is often made that exposure levels to asbestos are much lower today than they were 20 to 30 years ago when workers who are currently suffering from asbestos-related diseases were probably first exposed. The implication is that current exposure levels may pose little threat to the health of future workers, and that we should not base current policy responses on past high exposure levels.

While it is true that current exposure levels may be low relative to past levels it is also true that we are now exposed to a higher level of some other toxins and carcinogens in our general environment as well as work environment. It is also true that we now may be able to afford,

and hence prefer, higher standards of occupational health than we were in the past, just as we seem to be willing to spend more on health care services in general. In essence we are making policy decisions today that may not have an effect for 20 to 30 years; hence, we have to think of other conditions that will prevail 20 to 30 years from now. These conditions may involve a cure for today's diseases or they may involve some growth of today's diseases.

Hazards associated with asbestos at the workplace have been known for some time, at least since the 1930's. One indication of the existence of such hazards was the fact that "both U.S. and Canadian insurance companies stopped selling life policies to asbestos workers in 1918" (Reasons, Ross and Paterson, 1981, p. 46). Apparently firms (insurance companies) with a financial stake in proving the existence of the hazard were able to identify its dangers quite early.

This raises the question of why the various parties to the employment relationship did not act earlier on the suspected hazards of asbestos. Labour often argues that they did not know and that much of the information was deliberately hidden from them by management. Employers often argue that the hazards were uncertain and were only one of many possible hazards associated with various facets of work.

For whatever reasons the response to workplace hazards appears to have been slow. It was not until the 1970's, perhaps reflecting the general mood of consumer and environmental protection, and growing epidemiological evidence from studies of asbestos workers, that a new impetus emerged. This new impetus was reflected in all three of the main mechanisms for dealing with occupational health and safety -- the market, collective bargaining and legislation.

III. MARKET MECHANISMS AND COMPENSATING WAGES

Private-market mechanisms refer to the market mechanisms whereby the private parties through their own individual actions -- rather than through collective action as with unions or legislation -- affect market outcomes. The purpose of this section is to discuss this system of private ordering, emphasizing the role of competitive market pressures and compensating wages for hazardous work. The next section deals with how and when competitive market pressures may fail to provide a socially desirable outcome with respect to asbestos dangers at the workplace.

The Competitive Paradigm

The competitive paradigm is often used by economists to illustrate the long-run tendencies that would prevail in a market characterized by such factors as perfect competition, certainty, perfect information and no transaction costs. When such characteristics are lacking -- as is the case with asbestos dangers -- then the market outcomes will differ from the competitive norm; however, the competitive pressures can still prevail, having an influence on the market, although not necessarily determining its precise outcome.

According to the competitive paradigm,workers would use their individual bargaining power and the threat of mobility and exit to ensure that compensating wages are paid for hazardous work. Such compensating wage premiums are akin to those paid for other undesirable job characteristics, as is the case, for example, with time-and-one-half for overtime, or shift premiums for night work or premiums

for dirty work. Workers would select jobs in part on the basis of their willingness to accept wages in return for hazardous work. Those who have an extreme aversion or susceptibility to certain hazards would not work in those jobs for which the compensating wages were insufficient: the market would sort workers into jobs in part by their aversion to certain hazards.

In theory workers would be able to "purchase" the amount of safety and health they want in the job by shopping around for a job that contains the set of characteristics that best satisfies their needs, subject to the costs of providing those characteristics. The "price" they pay for such health and safety is the forgone compensating wage that they otherwise would receive for work hazards. In this fashion individual workers would be required to pay for the amount of safety they get; hence, they would have an economic incentive not to "demand" a completely safe work environment as they may if the price of such an environment were zero to them. In other words they would purchase a certain amount of safety, but just as they do in their home or automobile, they would in all likelihood not try to purchase a completely safe environment.

Firms, in turn, would be required to pay (through compensating wage premiums) for the hazards they produce as a byproduct of their normal production process. The compensating premium would encourage them to reduce hazards so as to save on the wage premium; however, the market mechanism would allow them to determine their own degree of safety and to trade off wages for hazards. In addition, the market would encourage them to reduce hazards in the least-cost fashion, be that through changing the work environment, recruiting procedures, accident prevention on

the part of workers or by simply paying a compensating risk premium for the remaining risk. Many of the adjustments may also affect wages: uncomfortable protective clothing or assigning more responsibility to line supervisors may require compensating wages; on the other hand, reducing the pace of work may reduce the compensation necessary both for rapid pace and for associated accidents. Whatever the level of cost associated with the resulting level of occupational risk, in the competitive model this cost is paid for by consumers in the price of the product they ultimately consume.

It is important to realize that the competitive model does not require all workers to have full information about hazards and to quit their job whenever the wage premium is not sufficient to compensate for the hazards. Rather it requires that some workers be willing to use the threat of leaving or not entering jobs for which the wage premium is insufficient. Empirical evidence presented in Viscusi (1979), in fact, indicates that workers in hazardous jobs do tend to quit more often than those in nonhazardous jobs, suggesting that a learning process related to the hazards occurs on the job and that hazards can affect the firm's ability to retain its workforce. It is the preference of such workers on the margin of decision (i.e., the flow of new applicants or quits) that determines the required compensating wage and the resultant level of risk that will prevail in the competitive market. (This is in contrast to the unionized environment -- to be discussed subsequently -- where the wage-hazard tradeoff is determined more by the average or typical worker.)

The term marginal worker is used here to denote those who are most likely to affect the size of the firm's workforce in the occupations subject to hazards (and hence for which the firm has to pay a compensating wage to maintain that workforce). Some may be older workers who have the option of mobility or early retirement; however, it is generally believed that older workers are relatively immobile because of family and community ties and because of pensions, seniority and deferred wages that are tied to their employer. In spite of their lack of general mobility older workers may have some mobility within the firm in the sense of transferring into or out of hazardous jobs and they may be able to alter the quality and intensity of their work (a margin of decision that is not usually considered in conventional labour economics) in response to work conditions and hazards.

In general, however, it is the preferences of younger workers who are the potential new recruits for such jobs that will determine the incentives that employers will have to provide for working in hazardous jobs. There is an impression that younger workers do not place as much emphasis on safety as do older workers. If so, then the resulting high degree of risk may not reflect the preferences of older workers: their relative immobility, however, means that there is not much they can do about it in a system that relies exclusively on market forces. There is also a belief, however, that younger workers attach a great deal of importance to their general work environment and that they are concerned over safety and health hazards and are willing and able to act on those hazards. In essence, the preferences of younger workers will probably dictate the extent and form of employer responses to workplace hazards

in a competitive labour market; however, it is not clear how representative their preferences are towards health and safety at the workplace.

The competitive market generally relies upon individual bargaining and upon individual threats of mobility or exit from certain job situations. In order for the threats to be credible they also have to be carried out at certain times and this can clearly be costly to certain individual workers. Individual "voice" may be utilized through suggestions or communication devices between workers and management, but in general these mechanisms will be played down unless they have a bearing on the exit and entry possibilities of marginal workers. Explicit contracts between individual workers and employers would be possible, but in general implicit contracts would be more prevalent. Employers would acquire a "brand name" with respect to the level of safety they provide, and their brand name would determine the degree of compensating wage paid in the market. If their brand name were altered by some dramatic change -- such as the "discovery" of an asbestos health hazard -- then they may well seek to go out of business rather than alter the hazard or pay a higher compensating wage. In fact one of the implications of the competitive model is that such plant closings will be prevalent in situations where previously unknown hazards are discovered, possibly leaving workers without a job, without compensation for the hazard, and with a health hazard that may jeopardize their future employability. This raises the policy issue of the appropriate compensation for workers affected by plant closings resulting from the discovery (or uncovering) of health hazards.

The upshot of this stylized competitive market with no problems of market failure (to be discussed subsequently in Part IV) is an outcome

that reflects what the various participants -- employers, consumers and workers -- are willing and able to pay for the degree of occupational hazards that prevails, and that provides the incentives to balance the benefits of a safe work environment against its costs. Employers have an incentive to reduce hazards in the least-cost fashion, which may be through altering the work environment and recruitment procedures, the requiring of protective equipment and clothing, and the payment of compensating wages for the remaining hazards or as compensation for the other ways of altering hazards. The cost of such hazard reduction would be passed on to consumers in the form of higher product prices for those products that involve considerable hazards. If the hazards were to increase, then the price of the product would increase and consumers would have an incentive to substitute away from those products the production of which involves hazardous work. Employees would also have an incentive to take their own precautions and to "purchase" a degree of safety that is in accordance with their willingness to pay (by forgoing wage premiums for hazardous work) for their preferences. Employees also have an incentive to sort themselves into jobs on the basis of their aversion to, and ability to take precautions against, various forms of risk.

While such a competitive market -- to the extent that it exists -- could provide these desirable features, it has numerous related undesirable features. In addition, there is the question of whether or not the competitive paradigm is applicable to the labour market in general and to the market for occupational health and safety in particular. Before turning to these problems of market "failure," a discussion of the role of compensating wages for hazardous work is provided, since this is one of the key ingredients in the market mechanism.

Role of Compensating Wages

Clearly, compensating wage premiums for hazardous work play a key role in the viability of the market mechanism for dealing with asbestos dangers at the workplace. Because of its technical nature, the econometric literature on compensating wages is reviewed separately in Appendix A. In this part of the report we provide a nontechnical summary of that literature, emphasizing the generalizations that emerge.

Estimates of wage premiums for hazardous work are usually obtained by relating wages to some measure of hazards, after controlling for the influence of other wage-determining factors, usually through the use of multiple regression analysis. Because of data limitations the hazards usually reflect safety (e.g., accident rates) rather than health; hence, they do not provide direct evidence of wage premiums for exposure to health hazards like asbestos.

Controlling for the influence of other wage-determining variables is extremely important since it helps clarify a disagreement that prevails in the area. Casual empiricism, and the impression of many of the participants in the industrial relations arena, suggests that low wages and poor working conditions such as hazardous work go hand in hand. This leaves the impression that compensating wage premiums are not paid for hazardous work.

The empirical evidence (largely from blue-collar jobs) confirms that when other wage-determining factors are not controlled for, the gross relationship between hazards and wages is negative; that is, low-wage workers have more hazardous jobs. However, when other wage-determining factors are controlled for, the partial relationship is positive;

that is, wage premiums for hazardous work do prevail. In essence, the wages of low-wage workers, at least in blue-collar jobs, would be even lower were it not for the fact that they tend to be exposed to more hazardous work, and the wages of high-wage workers would be even higher were it not for the fact that they tend to be exposed to less hazardous work. Thus while it is true that low-wage workers have more hazardous work it is also true that wage premiums prevail for hazardous work; the former is a gross relationship, and the latter is a partial relationship after controlling for other wage-determining factors.

Knowledge of both the gross and partial relationship is important. The former is important for reasons of equity or fairness; much of our concern with occupational hazards stems from the fact that they disproportionately fall on those who are already most disadvantaged at the workplace. Knowledge of the partial relationship is also important because it tells us if the market mechanism is working in compensating workers and putting costs on employers, and ultimately consumers, for hazardous work environments.

As Appendix A indicates, the econometric literature tends to confirm the existence of a compensating wage premium for hazardous work, although most of the studies refer to safety hazards, rather than those arising from exposure to hazardous substances. The premiums increase with the seriousness of the risk, being largest for risks of death, next largest for risks of permanent injury and smallest for risks of temporary injury. There is some evidence that the compensating wage premium for additional risk is larger for unionized than nonunionized workers and that it is smaller when workers' compensation covers some of the risk.

The magnitudes of the wage premiums for hazardous work also appear plausible. The only Canadian study in this area (Hinton, 1980) estimates

the average annual compensation for the average frequency of nonfatal accidents to be 440 dollars or 3.6 percent of earnings, which was comparable to U.S. results. This estimate was based on Ontario Workmen's Compensation Board data for a group of predominantly male blue-collar workers in manufacturing and construction between 1975 and 1978. It is an estimate of compensation for the uninsured portion of risk since workers' compensation would insure against at least some of the risk.

While the econometric literature tends to find the prevalence of a positive compensating wage premium for risk of injury there certainly are exceptions in the literature. In some cases, especially for the risk of less serious injuries, the premiums are statistically insignificant and often of the "wrong" sign -- that is, the "premiums" are negative. The magnitudes of the premium also differ substantially although this should not be surprising given differences in data sets and methodology. Differences prevail in the degree of aggregation of the data (individuals versus group), the degree of riskiness of the jobs, the measures of risk, the insurability of that risk through such factors as workers' compensation, and the extent to which other wage-determining factors besides risk are accounted for. In addition, it is unclear what can be inferred about compensating wages for occupational diseases when most of the literature is based on compensating wages for safety hazards, where the information problem and long latency period do not prevail.

In spite of these differences in data methodology and subsequent empirical results, there seems to be reasonable agreement in the econometric literature that compensating wage premiums for hazardous

work do prevail. There is considerable disagreement, however, on the extent to which such premiums are "adequate" (especially for health, as opposed to safety, hazards) and on whether or not they can or should be relied upon to ensure an adequately safe work environment.

IV. MARKET IMPERFECTIONS AND FAILURES

The extent to which market mechanisms (largely through compensating wage differentials) can be relied upon to provide adequate health and safety at the workplace depends on the absence of market imperfections and failures in this area. The purpose of this section is to outline the various reasons for possible market failure and to discuss their applicability to the market for occupational health and safety. We begin by discussing a broad range of market "imperfections" which occur when markets exist but they operate imperfectly, although these imperfections reflect real costs of correcting them (in that sense the problems will probably persist under alternative nonmarket mechanisms). This is followed by a discussion of the more severe market "failures" where markets either do not exist or where their results are socially unacceptable.

Market imperfections are said to arise when there is risk and uncertainty, imperfect information, indivisibilities and substantial transaction costs and immobility. All of these are characteristic of the labour market in general and of the market for occupational health and safety in particular. These imperfections are especially pertinent to health hazards and occupational diseases even more so than safety hazards.

Risk and Uncertainty

Asbestos dangers at the workplace are clearly ones that can be characterized as involving high risks and uncertainty. The severity of the health risk is obvious because the diseases caused by asbestos can be irreversible and involve

permanent disability and death. The fact that the magnitude of the risk is subject to considerable uncertainty is also obvious since it involves a long latency period, an unknown exposure-response relationship and complex synergistic or interaction effects. Especially in an age of increasing exposure to toxins and carcinogens in our general environment, the risk and uncertainty associated with such exposures in our work environment may be particularly acute -- even if exposure levels in our workplace are declining. (It is for this reason that we cannot be sanguine about the fact that occupational exposure levels may be much less today than they were in the past. Future diseases may be much more severe despite lower current exposure levels to any one disease because of the unknown interractions with the additional toxins and carcinogens.)

The presence of severe risk and uncertainty does not mean that markets will fail to function. Insurance markets in fact arise precisely to deal with such risk and uncertainty, and wage premiums exist precisely to compensate for the uninsured risk and uncertainty. Unions and regulations would be subject to the same uncertainty, although they may have better information than individual workers on that risk and uncertainty. In other words, the market imperfection hinges more on the information problem than on the problem of risk and uncertainty itself.

The notion that individual workers systematically underestimate risk or undervalue their own health and safety (even when fully informed) has often been advanced as a reason for market failure (Ashford, 1976, p.357; Northrup, Rowen and Perry, 1978, p.193). While casual impression suggests that some people, especially youths, consistently take "unnecessary" risk or discount the future, there is really no objective standard from which to make such

judgements. Certainly it would be at least as problematic to substitute the judgement of policy makers on the grounds that they know what is best for individual workers. Rather than viewing workers as unable to make judgements in the presence of risk and uncertainty, or as systematically making wrong judgements, it seems more sensible to base public policy decisions on the problem of information acquisition and dissemination.

Imperfect Information

The information problem pertaining to asbestos dangers at the workplace is clearly severe. If experts cannot agree on how its presence should be measured, how its impact can be gauged, and how exposure can best be minimized, is it reasonable to expect individual workers to have the information to make rational judgements? This problem is not peculiar to asbestos hazards: it applies to the numerous health hazards posed by the increasing introduction of toxins and carcinogens into our general environment as well as work environment.

The problem of imperfect information is particularly acute when workers do not have a working knowledge of English. (See the case study of Appendix D.) This can make it difficult for management, inspectors or even union leaders to communicate health hazards or the appropriate precautions to workers, and it may make it difficult to understand worker concerns and communicate them to management. This is especially the case with immigrant workers who are fearful of government officials and who may be reluctant to exercise any basic rights. Even when language barriers are not a problem, however, there are reasons to believe that the private market may provide sub-optimal amounts of information on occupational health hazards.

Information on occupational hazards has "public good" characteristics in the sense that, once provided, it would be equally available to everyone and it is not possible to exclude those who do not pay. Under such circumstances a private market for this information would not develop fully and the public provision of such information would be justified. In essence, there is insufficient incentive for each individual to pay the cost of such information because he or she cannot appropriate the full benefits that would accrue to others who could also use the information. This logic applies to the provision of labour market information in general and it is a rationale for the provision of such information through public employment services and agencies. The logic suggests that there is an equally compelling role for public agencies to provide information on job hazards just as they provide information on wages, training requirements and other job characteristics.

Unfortunately in Canada we do not yet have a centralized data bank that could provide such information. As indicated in Canada, Health and Welfare (1977, p.41): "To date no Canadian national centre or system exists for measurement and collective of all data on workplace hazards (hazard surveillance), work-related health effects, and the health status (health surveillance) of the labour force." Clearly there is a compelling rationale for the public provision of such information, and its usefulness will become even more appropriate to the extent that problems of occupational health achieve higher priority on the policy agenda.

Even if this information did not have public good characteristics there are reasons to believe that the private market would generate insufficient information. Quite simply, employers who possess such

information do not have an economic incentive to provide it: in fact they would have an incentive not to provide it. This may take the form of deliberately hiding information on hazards or even of providing misinformation. Or it may take on the more subtle form of simply ignoring the information, knowing that dealing with it will simply open up a pandora's box of problems. Epstein (1979, p.93) and Reasons, Ross and Paterson, (1981, p.47) discuss examples of such situations pertaining to asbestos in both Canada and the U.S. It is no coincidence that company doctors and studies sponsored by employers and their associations have often tended to minimize health hazards.

It is at best unrealistic and at worst perverse to expect employers in a market-oriented economy to act in a fashion that is against their economic self-interest. The appropriate policy response would be to provide the information publicly as much as possible and to prosecute firms that deliberately hide information or provide misinformation.

For fear that their product may be replicated by competitors, some firms may also be reluctant to provide information on the content of their product and they may utilize brand names that do not disclose the content. As cited by Northrup, Rowan and Perry (1978, p.97): "The use of trade names and manufacturers' reluctance to identify their products by chemical composition makes it difficult to know what health hazards workers face."

The problem may be particularly acute when firms are trying to get a competitive edge in the marketplace by being first to introduce a new product. The temptation may be to introduce the product prematurely before its potentially harmful effects are ascertained. Even the

conscientious firm may rationalize this action on the grounds that if they don't introduce the product someone else will -- and their competitor may be less conscientious. As Ashford (1976, p.343) also points out: "Being first may also mean that the firm has at least a temporary monopoly of information about the potentially deleterious effects of the substance or process in question upon workers and the environment, information which the firm will generally find in its interest to withold."

Again the market incentives dictate secrecy rather than the provision of full information with the result that workers may not be informed of the hazards to which they are exposed. The appropriate policy response is similar to the broader one of product labelling in general. It would involve requiring the labelling and provision of information on the content of hazardous workplace products in a form that is readily understood by workers. Where the degree of hazard associated with the content is not commonly known, or where the contents cannot be divulged for legitimate competitive reasons, then a labelling system indicating the degree of hazards and the appropriate precautions would be in order.

Currently the requirements for labelling of asbestos materials at the workplace appear minimal. As Glasbeek (1981, p. 12) indicates there are no direct requirements under The Occupational Health and Safety Act, 1978 nor under its associated regulations in establishments or mines. There is a labelling requirement in the construction regulations; however, Glasbeek indicates (p. 12) that: "As this provision is placed within the regulations under the heading 'Storage,' it is probably of limited application...." She also indicates (p. 12) that:"It is possible that the duty of an employer under The Occupational Health and Safety Act, 1978 to

provide information to protect the health of a worker could be interpreted to mean than an employer should ensure that products used at a workplace which contains asbestos are labelled. There is no indication that this duty is interpreted in this way."

Indivisibilities

The competitive market paradigm requires that individuals be able to sort themselves into jobs that provided their preferred mix of job characteristics including safety. However, job characteristics are not perfectly divisible so it is not always possible to get the desired mix, even if one is willing to pay for the characteristics: a market may simply not develop for every characteristic. For example, a worker may prefer a safe work environment and a job that is close to home, and that worker is willing to accept a lower wage for both of these desirable characteristics. However, the only jobs close to home involve hazardous work and they pay the going market premiums for such hazards. Given that the safety component of the job is not completely divisible, it is not possible for the worker to take the job close to home and offer to work for a lower wage if the hazards could be reduced. The worker has an all-or-nothing choice and must choose between safety and location.

Clearly if there were sufficient workers with such preferences in that location, a market would develop for more safety at that job. When one considers the vast array of job characteristics, however, it is easy to see why well-developed markets do not emerge for each characteristic. The problem is not that markets fail but rather that they do not develop, and this reflects the real transaction costs of developing such markets. In that sense the problem is closely related to the following discussion of transaction costs.

Immobility and Transactions Costs

Market mechanisms may also be impeded by the existence of substantial costs associated with market transactions: in the case of labour market transactions, mobility costs may be paramount. As discussed previously the competitive economic paradigm requires that at least some workers on the margin of decision (e.g., the flow of new applicants or quits) respond to workplace hazards in their employment decision for firms to have an economic incentive to reduce hazards or provide compensating wages. This is a considerably less stringent requirement than requiring all workers to respond instantaneously to such hazards. In a dynamic growing economy or sector where there is reasonably full employment, it may be reasonable to expect a sufficient flow of workers to be moving in and out of jobs to ensure that employers have an economic incentive to reduce hazards or provide a compensating wage. However, in a stagnant or declining economy or sector characterized by high unemployment there may be few new hires or voluntary quits; hence, firms need not worry about their safety record. It is with such workers -- those who are trapped in their situation and lack mobility -- that public concern is paramount. It is for these workers that the market response of leaving to find a new job is often regarded as unreasonable or unacceptable.

The previous discussion dealt with various market imperfections -- situations where markets existed in various forms, but could not operate perfectly. The imperfection, however, usually reflected real cost factors which would have to be dealt with under non-market systems as well. There are also situations, however, where markets do not exist or where they do exist, they yield socially unacceptable outcomes.

It is to these situations that we use the term market failure, usually arising from externalities, merit goods and distributional or fairness considerations.

Externalities

Market externalities are said to exist when the actions by market participants affect others and the market does not automatically extract payment. In the case of occupational health and safety an externality would prevail if, in the production of goods and services, employers affected the health and safety of their workers and the labour market did not extract full payment for the hazards imposed on the workers. In such circumstances the social costs of production exceed the private cost because the full cost of the hazardous work environment would not be included in the private cost, and hence price to consumers, of the product.

The extent to which an externality prevails in this area depends upon the extent to which compensating wages fully compensate workers for workplace hazards. In our previous discussion of compensating wages we indicated that the empirical literature indicated that compensating wages for risk of injury did prevail and the magnitudes appeared plausible. The extent to which they fully compensate workers for risk, especially risks arising from occupational diseases, remains an open -- and perhaps unanswerable -- question.

There are at least two areas where it seems reasonable to believe that wage premiums for hazardous work may be insufficient to compensate for the full cost of possible hazards, and hence where a possible externality may exist. First, it is less likely that compensating wages will

be paid for occupational disease as opposed to injury, given the problems of information, latency and cause associated with occupational disease (Smith, 1976, p.30). Second, it is unlikely that wages would be adjusted fully to compensate for the possibility that firms may go bankrupt or shut their operations when hazards are discovered or uncovered, as can be the case with occupational disease. In this case, firms (and ultimately consumers) may never be required to pay for the full social costs of production that involves hazardous work. Knowing in advance that this option exists for them, firms may not take adequate precaution against such potential hazards. The worst that can happen to them is that they shut down their operation or go bankrupt with little or no liability to their workers and no concern for future adverse experience ratings through workers' compensation.

From a policy perspective these possibilities suggest that policy makers need not be greatly concerned that compensating workers for newly discovered occupational diseases would involve double-compensation to workers, since it is unlikely that they had earlier received a compensating wage. In addition, to the extent that plant closings and bankruptcy are common in situations of newly discovered work hazards, policy consideration should be given to the appropriate liability and compensation policy. One obvious possibility is to make employers potentially liable for health hazards to their employees in the event of bankruptcy or plant closings. Such liability could be in the form of payments to cover what would be future increases in workers' compensation premiums (to cover the new higher experience rating), or if they were not to be liable for workers' compensation then they could be made liable to being

sued by individual workers -- protection from that right no longer being guaranteed by payment to workers' compensation.

Merit Goods and Basic Rights

There are numerous goods and services for which society forbids free market transactions (prostitution, sale of narcotics, abortions) or requires mandatory consumption (vaccinations, seat belts, basic education). In many cases these are justified on the grounds of externalities; however, in other cases there seems to be a presumption that individuals should not be allowed to engage in certain activities even if they do not affect others. Hence seat belts are required by law and suicide is forbidden. In other cases there appears to be a presumption that people have a basic right to certain minimum standards even if they would prefer to make other purchases with their limited income: such may be the case with public provision of housing or health services. The common characteristic of these factors is that market transactions, even those freely entered into, are not acceptable to society. Critics regard this as presuming that individuals do not know what is best for them and that society does; supporters argue that there are simply a few items to which all individuals have a basic right, and in some cases a basic obligation, to consume.

The labour market is replete with such requirements and prohibitions with respect to such factors as child labour, employment contracts below the minimum wage, and minimum labour standards with respect to such factors as hours of work, vacations and working conditions. Whether the motive is to protect the disadvantaged, or protect the advantaged from competition from the disadvantaged, the labour market is not allowed

to determine the wages and working conditions of many workers, usually those with little individual or group bargaining power.

Occupational health and safety is also often regarded as something that the market should not determine, at least with respect to certain minimal standards. Phrases that echo this sentiment include: "the right to a safe work environment" and "health and safety ought not to be bargained over."

It is difficult, of course, to bring objective arguments to bear on the relevance of merit goods as an argument for market failure. It is the case that such market intervention can involve overriding the decisions of consumers (in this case, workers); they can make workers worse off by restricting their choice; and they can be costly. In spite of these problems there does appear to be a reasonable consensus that there is a limited set of activities for which individuals are unable to make decisions that are in their own best interests, or at least that they should not have to be subject to market pressures in making such decisions. To a large extent this aversion to a market solution for such merit goods (or bads) stems from the belief that market participants may be uninformed, or even if fully informed they are unable to afford to purchase what society deems to be a minimal amount of such goods. The market information problem we have already discussed; it is to the ability of individuals to afford a basic modicum of health and safety that we now turn.

Equity or Fairness

Many of the concerns over the market solutions to occupational health and safety are really concerns over issues of equity or fairness. Most people don't get upset at the pay premium for hazardous work received by

professional stuntmen or even police or firefighters. Such workers usually are well-informed of the risk, they have a reasonable degree of alternative choices and they are usually well-paid: risk is simply part of the job.

There is more concern, however, when workers have to take a risk simply to make a subsistence wage or to get a job because of high unemployment. There is also concern when workers from a poorer region are exposed to risk as a way of life. It offends a sense of justice that some people should have to make a living by selling their health and safety, even if they are fully informed and willing to do so given their limited choices. It also offends the sense of justice of many workers that they have to bargain, collectively or individually, over health and safety issues with managers who will probably never experience such hazards: it would certainly be easier for workers to accept the downplaying of such hazards by management if managers themselves were exposed to the same hazards.

Even if there were no market imperfections or market failures arising from externalities or merit goods, there is no guarantee that the market would yield a distribution of rewards that would be considered fair or equitable. A perfectly functioning market guarantees efficiency, not equity. Economists tend to downplay the equity aspects, in part on the grounds that achieving efficiency ensures the largest output per unit of input and this in turn provides the potential means to compensate everyone to make them better off than if efficiency were not attained. However, there is no guarantee that actual compensation will occur and even if it does it may be demeaning or have adverse incentive effects.

This latter type of inequity (horizontal inequity) stems from the "unequal treatment of equals"; that is, those who are equally exposed will suffer unequal consequences. This is in contrast to the previously discussed notion of equity (vertical equity) where concern arose because the disadvantaged bore a disproportionate burden of the hazards. Horizontal inequity may not be regarded as unfair by some to the extent that everyone in the particular occupation is exposed to the same possibility of the hazards prior to its occurrence: it is like a lottery where only a small number will actually experience the event. In addition, workers' compensation is designed precisely to compensate the unfortunate few. This does suggest, however, that a concern over the fact that the adverse consequences are concentrated on a few could justify greater compensation (e.g., for "pain and suffering" as well as income replacement) for those few. This would reduce the compensating wage premiums in the market place; however, that would be consistent with sharing the burden.

Summary Observations on Market Imperfections and Failures

Market mechanisms can and do exist to ensure that the costs of occupational hazards are considered as part of the costs of producing goods and ultimately as part of the price paid by consumers for items the production of which inevitably involves some danger. This in turn induces employers to reduce hazards, consumers to reduce consumption of goods involving hazardous production, and employees to take precautions. Whether the full social costs are considered, however, depends upon how well the market functions.

Numerous potential market imperfections were identified including risk and uncertainty, imperfect information, indivisibilities and immobility. These were seen as very real in the area of occupational health and safety, especially with respect to occupational diseases like those emanating from asbestos. Imperfect information appeared to be the most compelling problem, in the sense that it also appeared to be a fundamental issue with respect to the other imperfections. The problem arises because the market by itself could generate a suboptimal amount of information because of its public good characteristics and because firms have an incentive to hide the information and perhaps even to misinform. While the market has these problems it is important to realize that other mechanisms will also have problems since the provision and dissemination of information involves real resource costs. This is also true with the removal of the other market imperfections involving risk and uncertainty, indivisibilities and immobility.

In the case of market imperfections, markets were seen to exist but to operate imperfectly. In other cases, however, markets may fail to exist and thereby to account for the full social costs of accidents as, for example, if compensating wages were insufficient or if firms could avoid liabilities by going bankrupt or closing operations that were discovered to be hazardous. Markets may also fail to provide certain basic rights (e.g., a safe work environment) or to ensure equity or fairness in the distribution of work hazards.

Clearly theoretical arguments can be made to suggest that market imperfections and failures may exist in the area of occupational health and safety. Market problems in this area are probably most severe with

respect to imperfect information and market failure to provide certain basic rights and equity of treatment. This suggests that the appropriate policy responses lie in the area of the public provision of information and the provision of certain minimum standards of occupational health and safety for all workers.

The extent to which market problems are predominant (or are better dealt with by nonmarket mechanisms) is a much more open and debatable question. Suffice it to say that there appears to be a collective dissatisfaction with complete reliance on the private market mechanism. This collective dissatisfaction is manifest through support for two alternative (or at least supplementary) mechanisms -- collective bargaining and legislation. It is to these that we now turn.

V. UNIONS AND COLLECTIVE BARGAINING MECHANISMS

Unions generally have not accepted the system of private ordering involved in an unregulated market mechanism, especially for the allocation of labour resources. In fact the avowed purpose of much of the union movement has been to "take labour out of the labour market" under the rationale that "labour is not a commodity." Clearly their concerns with the private market mechanism would also encompass occupational hazards which involve the very health and safety of workers.

Basically unionism emerged as a security response to what otherwise could be arbitrary treatment on the part of management: the objective was to obtain a measure of due process at the workplace through such devices as contract provisions and grievance procedures. Unionism involved a rejection of reliance upon the basic market mechanism of quitting on the part of individual workers and unqualified dismissal on the part of management. Collective action was to replace individual action, negotiation was to replace unilateral determination, and the strike was to replace quitting as the ultimate weapon of labour.

Union Preferences and Tradeoffs

This collective response has profound implications for issues such as occupational health and safety. It means, for example, that unions would use their collective power and voice to try to improve health and safety conditions at the workplace rather than simply rely on management's discretion to provide safety so as to facilitate and to save on compensating wages.

In theory, the collective preferences of the union will be dictated by the average voting member. This is in contrast to the market mechanism where the preferences of the marginal worker would determine safety priorities. To the extent that the average union voter is likely to be older than the marginal worker (often a new recruit) and to the extent that the average voter is likely to express preferences for his current and future concerns, then the collective bargaining mechanism is likely to reflect the preferences of middle-aged and older workers. (In this regard, union emphasis on seniority is no accident.)

To the extent that middle-aged and older workers emphasize a safe work environment more than do younger workers[1] with their mobility option, then the degree of occupational health and safety that emerges in the workplace is likely to be greater under unionization than through the private market mechanisms. Not only are union preferences in this direction, but they probably have more power than do individual workers to get those results. For those reasons, it is possible that some of the recent upsurge of union interest in occupational health and safety reflects the aging of the unionized blue-collar workforce: youths who were exposed to the consumer and environmental issues of the 1960's may be influencing union votes in the 1970's and 1980's. They are simply carrying their health concerns to the workplace.

Although the preferences of unions are likely to reflect the middle-aged and older union members, the preferences of such workers are subject to the internal union tradeoffs that are involved within any political institution. Thus the safety issues that concern some

members are required to confront the equally compelling issues of others, such as retirement provisions for older members, medical and dental plans for workers with large families, and job security for younger workers. This also means that safety issues may be traded off in bargaining for items that concern all workers -- notably wages.

Trade unionists themselves have been self-critical of the low priorities that unions have often assigned to safety issues (Wallick, 1972). As indicated by Lorne Heard (1978, p.110) while a Safety Co-ordinator for the United Steelworkers of America: "The employers found out very early that when safety was on the table you could get it to the last item of bargaining. If you could not get the union to move off the health and safety issues then you could, very often, for two or three cents, buy the members away from the safety issues." Or as stated by Neil Reimer (1978) while Canadian Director of the Oil, Chemical and Atomic Workers: "Very often health and safety is the last item at a union meeting. The negotiating committee very often think they've done a tremendous job by establishing a health and safety committee jointly with management and then forget to negotiate their rights. The health and safety committees very often do not have the back-up information and expertise from their union to help them do an effective job."

This lack of information and expertise can be a problem especially given the decentralized nature of collective bargaining in Canada. In contrast, in Europe, where collective bargaining is more centralized, often occurring at the national level, such information and expertise can be available. In addition, under national bargaining (and where labour has a greater say in social policy), it is more feasible to

imagine occupational health and safety being part of a broader social policy pertaining to health in general.

It is almost certainly the case that both unions and individual workers were uninformed about the health risks of asbestos exposure, at least until recent years. However, in general, unions have more information and bargaining power than do individual workers. To be sure situations can arise where unions are undemocratic, company-dominated or unconcerned with minority rights; however, these are the exceptions and public policies exist to correct these problems. In general unions can be relied upon to reflect the collective preferences of their members with all of the internal union tradeoffs that are involved. To the extent that safety issues are not given top priority or are traded off for wages, this probably reflects the realization by unions that such issues are costly to management and can be won only by unions' forgoing other demands. Extreme demands for safety may even mean plant closings and, as indicated by Boudreau (1978, p.86), trade unionists are aware of this ultimate dilemma: even union workers may have to choose between safe jobs and no jobs. In this way the legitimate demands of trade unions are required to confront the equally compelling concerns of employers: the benefits of a safe work environment are traded off against its real costs. This raises the issue of the extent to which workers perceive health and safety as a problem and the extent to which they rank it as a priority.

Evidence on Worker Preferences Towards Health and Safety

Unfortunately there is little systematic evidence on workers' perception of the occupational health and safety problems and on how

different workers rank occupational health and safety as a bargaining priority. In addition, the limited evidence is somewhat conflicting.

Ashford (1976, p.89) cites U.S. surveys indicating that occupational health and safety hazards were considered a problem by a large proportion of the workforce and that such hazards were considered to be a serious problem. In fact, approximately 70 percent of the workers considered it very important to have protection against each of health and safety hazards, work-related illness or injury and inadequate expense coverage during work-related illness or injury. The only other problem area that ranked as high in the priorities of workers was inadequate income. It appears that workers attach a high priority to protection from occupational health hazards, but they also attach a high priority to income. This suggests that safety issues may be emphasized by workers but that they may be traded off for wages or job security.

Ashford (1976, p.91) also cites a survey by the Allied Industrial Workers International Union (representing metalworkers) indicating that blue-collar workers ranked the following work elements in descending order of importance: good health and safety practices; contingency protection (e.g., workers' or unemployment compensation); opportunity to achieve and grow on the job; fair employment practices; and adequate income.

Not all survey evidence, however, tends to show such high priority attached to safety issues. Data from the 1977 U.S. Quality of Employment Surveys, for example, indicated that one-third of all production workers indicated a willingness to give up a 10 percent pay increase for "a little more health and safety" at work (Frenkel, Priest and Ashford, 1980, p.12). Health and safety issues, however, ranked seventh in priority

behind increased retirement benefits, more medical insurance, more paid vacation, a shorter work week, more promotion opportunities, and greater job security. The survey also indicated that workers generally felt that their unions pursued the goals of workers in the correct order in priority. Of those issues on which workers felt unions should expend additional effort, occupational health and safety ranked seventh in a list of ten areas of concern. Analysing the same data, Kochan (1980, pp.167-171) also indicated that health and safety ranked about in the middle of a list of bargaining issues that union members felt merited more attention by their union.

Kochan, Dyer and Lipsky (1977, p.14) also provide survey evidence indicating that safety issues are given considerable, but not top, priority by the rank and file, and that safety is regarded as one of many important issues that have to be considered in bargaining. Specifically, safety was regarded as more important than the following bargaining issues by the indicated percentage of respondents: wages 5.9 percent, grievance procedures 23.5 percent, vacation provisions 11.8 percent and work rules 21.6 percent. Safety was regarded as <u>equally</u> important or more important by the following percentage of respondents: wages 56.9 percent, grievance procedure 76.4 percent, vacation provisions 62.8 percent, and work rules 86.3 percent.

As indicated by Kochan, Dyer and Lipsky (1977, p.14):

> The overall conclusions that can be drawn from these data are that there appears to be a wide variation in the importance rank-and-file members in these plants place on safety, and although safety is judged to be as important as other central topics of collective bargaining by the majority of respondents, it is not a top priority issue in many relationships... The

> wide variation in the ratings suggest that safety would be a difficult issue on which to mount sufficient pressure or concern to achieve systematic gains in contract negotiations. Mounting an effective and sustained strike threat over safety issues is likely to be difficult (except, of course, in specific situations where conditions deteriorate drastically or a catastrophic event results in a ground swell of support for concerted action to eliminate hazards).

Strikes Over Health and Safety

The contention that the divergent preferences and the priorities attached to safety by the rank-and-file would make it difficult to mount a strike over safety issues is born out by the data of Table 5.1. In the 10-year period 1970-79 in Ontario only 11 strikes (involving 100 or more workers) were recorded[2] as involving safety issues, of which two also involved other issues. Most of the strikes were of very short duration, all but one being five days or less, compared to an average duration of 16 days for all Canadian strikes over the same period (Anderson and Gunderson, 1982). In essence, only about one strike per year (involving 100 or more workers) occurs over safety issues and the strike typically tends to be very short.

In most circumstances the brief strike probably served to highlight the workers' concern over a particular safety issue. For that reason many of the strikes listed in Table 5.1 were probably wildcat strikes (occurring during the term of the existing collective agreement). This is supported by the fact that wildcat strikes also tend to be of short duration, in part because they are illegal in Ontario. As suggested by Ison (1979), wildcat strikes may be utilized over safety issues in part

TABLE 5.1

RECORDED STRIKES OVER SAFETY IN ONTARIO, 1970-1979.

(larger stoppages involving 100 or more workers)

Beginning Date	Length (Days)	Union	Company	Location	Workers Involved	Person Days Lost	Other Issues
18/4/79	3	Autoworkers Loc. 458 (CLC)	Massey-Ferguson	Brantford	1700	4150	No
21/6/79	4	Canadian Chemical Workers Loc. 28 (Ind)	Dupont	Maitland	600	1710	Yes
9/2/78	2	Steelworkers (AFL-C10/CLC)	Canadian Mine Enterprises	Elliot Lake	200	400	No
9/6/78	22	Steelworkers Loc. 13173, 8562	Eldorado Nuclear	Port Hope	385	14300	Yes
26/9/77	2	Various Unions	Electric Power Syst. Const. Assn.	Douglas Point	175	350	No
23/10/75	1	United Electrical, Radio and Machine Workers Loc. 524	Canadian General Electric Co.	Peterborough	2900	2900	No
22/1/74	1	Various Unions	V.K. Mason	London	208	210	No
24/5/72	1	Boilermakers Loc. 680	Port Weller Dry Docks Ltd.	St. Catharines	400	400	No
17/6/71	4	Autoworkers Loc. 200	Ford of Canada	Windsor	4148	5670	No
16/11/70	4	Labourers Loc. 183	Foundation Co. of Canada	North Toronto	100	400	No
17/2/70	5	Glass and Ceramic Workers Loc. 295	Pilkington Bros. Canada Ltd.	Scarborough	265	1060	No

Source: Department of Labour, Strikes and Lockouts in Canada, various years.

because grievance arbitration, the conventional mechanism for handling disputes during the term of the collective agreement, does not have a major role to play since it involves the principle of "work now -- grieve later" -- a principle that may not be satisfactory for safety issues.

Certainly there have been other strikes involving safety issues in Ontario (some are discussed in the submissions to this Commission by the Ontario Federation of Labour, the United Steelworkers and the Canadian Centre for Occupational Health and Safety). And there have been exceptions when strikes over health and safety are more dramatic and of longer duration. Such was the case in the 1978 strike between the United Steelworkers and the Johns-Manville asbestos operation at Advocate mines just outside of Baie Verte, Newfoundland. Safety issues included worker dust sampling, improved safety committees, improved decontamination of workers, control of asbestos dust contaminating the community, and changes in the work procedures to minimize dust exposure. The strike lasted three months, it involved about 500 workers, and it included community demonstrations (Reasons, Ross and Paterson, 1981, p.223; Tataryn, 1979, p.45).

Even more dramatic in Canadian history was the violent five-month strike over union recognition at the Thetford asbestos mines in Quebec. The strike, now a legend in Canadian labour history (Trudeau, 1970), was supported by journalists such as Gérard Pelletier (later a federal cabinet minister) and Pierre Laporte (later the Quebec labour minister); the union chief Jean Marchand (later a federal cabinet minister and senator); a lawyer Jean Drapeau (subsequently mayor of Montreal); and another young lawyer and journalist -- Pierre Trudeau (Tataryn, 1979, pp.18, 19).

Such dramatic and prolonged strikes over health and safety issues currently appear to be rare. As our previous discussion of the Ontario

scene during the 1970's indicated such strikes were infrequent and of short duration. Whether or not this will continue in the future remains an open question given our increasing awareness of health and safety issues, our increased ability to afford such demands and the increased dangers from the multiplicity of carcinogens in our environment. To a large extent the need for strike action over these issues will depend upon the viability of other mechanisms, notably legislation, joint committees and the right to refuse hazardous work.

Should Safety Be Bargainable?

The question of whether or not safety should be a bargainable issue has arisen in various forms when occupational health and safety are discussed. (The title of the 26th Annual McGill Industrial Relations Conference, in fact, was "Are Health and Safety Negotiable?") For some, this is a basic philosophical issue, the feeling being that workers should not have to bargain over something as fundamental as health and safety: a safe work environment would be akin to an inalienable right. Management often also takes the view that safety issues are not bargainable, but for different reasons: they are regarded as issues that are subsumed under "management rights," over which management has full control. Others take the view that safety matters are not appropriate for bargaining because bargaining is adversarial and there is no room for the adversarial system over safety issues. As stated categorically in the Ham Report (1976, p.157): "there is emphatically no place for the adversary system of collective bargaining in dealing with matters of health and safety." This belief is espoused notwithstanding the fact that the Report advocated the "internal responsibility system" which was to

put responsibility for health and safety in the hands of employers and employees, both individually and through their unions.

As pointed out in Kuttner (1978, p.50): "The inherent conflict between an avowed policy of joint responsibility and participation in the establishment of a viable and effective health and safety structure and this rejection of the 'adversary system of collective bargaining' is evident to those of us who are active in industrial relations and the collective bargaining regime. Clearly, one cannot have effective worker participation outside of that structure." Reflecting this belief many would argue that collective bargaining over issues of occupational health and safety is not only appropriate but also desirable. Certainly both employees and employers would prefer not to have to bargain over safety, the former regarding it as an inalienable worker right and the latter regarding it as a management right. Both these positions, however, appear to be more part of the parties' overall bargaining stance and aspirations, rather than their realistic expectations (Boudreau, 1978, p.92).

With respect to the notion of an inalienable right to a completely safe work environment, Reschenthaler (1979, p.55) states: "In our interviews we failed to meet a spokesperson for organized labour who accepted this proposition as more than an ideal. All are sensitive to the fact that safety costs money, and that absolute safety is economically and practically unachievable." The remarks of one trade unionist, Emile Boudreau (1978, p.82), while Director for Occupational Health and Safety for the Quebec Federation of Labour, are even more revealing:

> In my day-to-day work as the director of the department of health and safety in the work place in a union headquarters,

> I am often confronted with the statement, an 'accusatory statement' if I may use that expression, to the effect that 'unions negotiate the health and safety of workers.' This accusation rarely comes from the workers. It comes from a whole string of 'extremist' groups whose members have never made and will never make compromises. It comes from the medical profession which, as we all know, has always made health in the work place its main concern. It also comes from students, especially students in the social sciences, because they are pure... The worst part is that there is truth in the accusation. Yes, unionized workers (and it is worse for the non-unionized) and the unions which represent them negotiate the health and safety of the workers, and they do it at every negotiation. And on an individual basis, the workers, whether they are unionized or not, negotiate their health and safety each time that they report to work at most of our factories, construction sites and other places of work.

On the inappropriateness of an adversarial system like collective bargaining to deal with issues of health and safety, many would simply argue that it works well for the determination of many other conditions of employment that are germane to the interests of both employers and employees. In fact, official public policy in Ontario, as indicated in The Ontario Labour Relations Act, is to encourage the practice and procedure of collective bargaining. The public's perception of its failures arises from incidents when it inconveniences third parties rather than employees and employers at the bargaining table.

It is well-known in industrial relations that the parties themselves realize that not all issues under collective bargaining are best

handled through the adversarial bargaining that tends to predominate when a collective agreement is negotiated or renegotiated.

Many issues are regarded as integrative involving mutual interests. Such issues are often handled through voluntary joint union-management committees that meet on an ongoing basis to deal with issues for which continuous joint input is required. Certainly the fundamental adversarial nature of the overall employee-employer relationship is recognized by both parties in the committees but it can be downplayed in the interest of maximizing the joint gains to be had by co-operative committees. The important point is that the parties themselves can and have recognized that some issues involve mutual gains, and they have established through the collective bargaining structure institutional arrangements to achieve those mutual gains. They have done so voluntarily without outside parties.

Kochan, Dyer and Lipsky (1977, pp.31-33) provide U.S. evidence indicating that both unions and management regard their goal conflict with respect to safety issues as being less than their conflict with respect to almost all other issues. This perceived mutuality of goals over safety was stronger for management than unions (as was the case for management on almost all issues); however, both parties did tend to emphasize mutual goals over safety more than over other issues. While both parties tended to emphasize mutual goals with respect to safety, neither party completely abandoned negotiating behaviour in dealing with each other on safety issues.

A balanced statement on the relationship between the adversarial nature of collective bargaining and the integrative issues involved in joint committees is provided by the Burkett Commission (1981, p.86):

> We accept that, as a last resort, health and safety proposals which have been carefully thought out and which reflect legitimate concerns may be appropriate matters for collective bargaining. We also accept that periods of union-management conflict will occur from time to time which will strain the relationship between the parties on all fronts. The challenge for the parties, therefore, is to develop the capability to deal with day-to-day health and safety concerns in a cooperative and consultative manner within the context of a free collective bargaining system. The representatives of both sides must recognize that strikes and other manifestations of periodic conflic will occur, but, at the same time, be able to maintain a consistent approach to health and safety matters.

Desirable Features of Collective Bargaining Mechanisms

We have already referred to what are often regarded as some desirable features of collective bargaining as a mechanism for dealing with issues like health and safety at the workplace. It requires the legitimate concerns of some workers to confront the concerns of other workers and for workers' concerns in general to confront the equally compelling concerns of employers. In this fashion, worker priorities are established and communicated to management and the obvious benefits of a safe work environment are weighed against its real costs, but in an environment where workers are better informed and have some bargaining power through their union. In addition, when there are mutual gains to be had by co-operating and minimizing the adversarial nature of bargaining the parties themselves can and have established institutional structures like joint safety committees, even before they were required by law.

There are other desirable features. The institutional structures and the bargaining outcomes agreed to by the parties themselves are likely to reflect the particular concerns and individual peculiarities of their own specific situation. (This is in contrast to the imposition of uniform legislated standards which run the risk of being of no value to some workers and of prohibitive costs to some employers.) It is a general principle of industrial relations that agreements worked out by the parties themselves, as distinct from being imposed by external parties, are much more likely to be lasting and workable. Nobody knows their own situation better than do the parties themselves to the employment relationship.

Unions are also in a much better position than individual workers to obtain information on job hazards. The public goods nature of the information problem can be internalized to a certain degree by unions, especially the centralized bodies, and they are in a better position than individual workers to get management to disclose information on hazards. To be sure limited management disclosure of information and limited union budgets operate as constraints on unions, but they are not as severe as these constraints on individual workers.

Unions can also play an invaluable role in communicating risks and rights to workers. Vehicles for doing so include union newspapers, bulletin boards, meetings and suggestions from shop stewards. Such information is likely to be credible to workers because it comes from an organization whose explicit goal is to protect the interests of workers. In addition it is unlikely to be exaggerated information because unions do not have an incentive to get their membership worked up over a fabricated situation that would require subsequent costly bargaining.

The collective agreement itself can provide a valuable source of information on workers' rights and responsibilities in the area of occupational health and safety. This is one of the reasons why collective agreements often paraphrase parts of safety legislation: the agreement tends to be more accessible and better understood by workers than does legislation.

Unions can also play an important role in assisting the legislative mechanism not only in communicating workers' rights and responsibilities under the law, but also in the monitoring and inspection aspects of legislated standards. The union presence is always there at the worksite whereas monitoring and inspection is usually periodic. As stated by one observer, Gibbs (1978, p.75): "Only management and employees are in the plants all the time and periodic visits by government inspectors cannot substitute for continuous presence, either in ensuring compliance with standards or in identifying the health issues of concern to the employee." Hazards can be reported by workers to stewards without fear of reprisals and the stewards may play a role in filtering out unnecessary concerns and in articulating real concerns. Unions can provide information on the work environment that would assist monitoring (e.g., the timing and location of high exposure levels to hazardous substances), and in fact, they could provide independent checks on exposure levels or jointly monitor with company personnel. As indicated by Heard (1978, p.111), the Steelworkers "have worked out agreements with some companies we have collective agreements with to have union members and company personnel monitor the area together. This arrangement has worked quite well. Unions can also provide the workers' perspective to inspectors and they can ensure that inspectors are not covered up by management."

Collective bargaining may also be a viable -- some would say necessary -- mechanism to get top management to pay attention to worker concerns over such matters as health and safety. Given the variety of competing pressures and interest groups that management has to contend with it is only natural that they may pay more attention to those groups that are most vocal or that can ultimately bring sanctions upon managerial actions. Without collective bargaining, workers may be relegated below stockholders, customers, middle management, supervisors, government regulators, and community and environmental groups.

The Burkett Commission (1981, p.24) indicated: "We have found that a strong management commitment to safe production, that is, an organizational requirement that defined safety standards be met, is the dominant common characteristic exhibited by the companies which demonstrate superior performances. We have discovered further, that it is the chief executive officer who sets the tone and ensures that safety is given the priority which it deserves." In an environment of numerous legitimate competing interests, collective bargaining may help in bringing health and safety issues to the attention of such senior management.

Unions can also provide a degree of institutionalized protection to workers where their rights of privacy may be jeopardized in an area that will take on increased importance with respect to occupational health -- that area being medical surveillance and record keeping. Especially in the area of uncertain health hazards with a long latency period the importance of continuous medical recording is obvious. It would provide invaluable information not only on the changes in the health of workers but also on the possible causes of those changes. With today's computer technology it is feasible to imagine a constantly

updated data bank, with virtual instant retrieval, of the medical and work history of each individual worker. (In fact it is feasible to imagine such a system for the medical records of all individuals.) Such a system could save on costly and possibly harmful repetition of tests and examinations and it could provide an invaluable data bank for research on the causes and consequences of various occupational diseases.

A comprehensive medical record system has been recommended by the Science Council of Canada (1977, p.38). The importance of such information also has been recognized by unionists. Heard (1978, p.114), for example, recommends "to improve the information on death certificates so that it can be used to improve our learning processes in occupational health problems in the workplace." Reimer (1978, p.173) recommends that unions be provided with "morbidity and mortality statistics ... and biological information which includes the results of clinical and laboratory studies of any employee."

Unions can be concerned, however, that such information could be used to the detriment of employees, as grounds for involuntary transfers, dismissals or refusals-to-hire. It may also be a traumatic reminder to workers of job health risks to the extent that their health is constantly under surveillance. It also raises the risk that such essentially private information can be accessed by others. With respect to the U.S., Northrup, Rowan and Perry (1978, p.246, 247) indicate:

> These new programs of postemployment medical surveillance have not been uniformly or well received by workers or their unions. The primary manifestation of the lack of employee acceptance has been conflict over such issues as the need to submit to examination, the right to use

> personal physicians rather than company physicians for medical tests, and the conditions governing access to and use of the results of such examinations... Individuals interviewed cited any number of reasons for employee resistance to medical examinations -- dislike of physicians, distrust of company doctors, and desire not to know what, if anything, is medically wrong... The resistance of employees to medical examinations has extended, in some cases, to employer efforts to develop complete medical histories on current employees in conjunction with attempts to construct a data bank on past exposures and health profiles for specific work forces. The reasons for this resistance are unclear and may reflect concern for either short-run claims on a job or long-run claims for compensation in case of disability.

Clearly some delicate tradeoffs are involved in this area of the use of private and very personal information. Unions at least can provide an institutional or collective protection in this area where individual rights otherwise may be in jeopardy.

Weaknesses of Collective Bargaining Mechanisms

While collective bargaining can be a viable mechanism to provide a degree of occupational health and safety to workers, it has certain weaknesses and limitations, and in the minds of some, certain disadvantages and undesirable characteristics. Many of these have already been discussed, including the emphasis on the adversary relationship in bargaining and the accusation made by some that unions can be undemocratic, company-dominated or unconcerned with minority rights.

There may be some concern that the internal union tradeoffs involved in the bargaining process may not adequately reflect the

concerns of workers exposed to health hazards to the extent that they are a minority in the bargaining unit. It may simply be more expedient to bargain for other items --notably wages -- that benefit all members of the bargaining unit. To the extent that this is prevalent then a guarantee of certain minority rights could be an appropriate policy response. This is already done, for example, by legislation which overrides collective agreements and forbids discrimination or, in the U.S., mandatory retirement. Legislated safety standards that could not be bargained away could be considered in the same vein.

Employers have also expressed concern that unions may try to win other bargaining demands by threatening to overutilize such devices as the right-to-refuse unsafe work, complaints to inspectors or the grievance procedure. As indicated in Northrup, Rowan and Perry (1978, p.257): "Access to OSHA for inspectors has also been used as a tactical device to exert pressure on employers over issues not related to safety and health. Most of the major firms studied reported that threats of employee inspectors were commonplace in conjunction with both contract negotiation and grievance handling. A number of those companies also reported experiencing higher than normal levels of inspection activity in some plants prior to and during contract negotiations."

It should be noted, however, that management may also use such tactics in the bargaining process. For example, they may threaten to require the use of uncomfortable protective equipment, no-smoking regulations, medical surveillance or employee transfers. In many circumstances these may be legitimate health and safety requirements; in other circumstances, however, they may be used as a bargaining tactic

to be given up in return for unions conceding on some of their own demands, including health and safety ones.

There may also be doubts about the ability of collective bargaining as a mechanism to ensure a degree of occupational health on the grounds that most of the viable ways of dealing with health hazards (as opposed to safety) tend to fall under "management's rights" and hence are not subject to the usual collective bargaining process. As indicated by Ison (1978, pp. 5-6):

> It has generally been accepted in labour relations that the location of new plant, the design and structure of new buildings, the selection of equipment, the products to be made, and the selection of materials, are all matters of management's rights. They are questions that management usually decides without consultation with the union... Thus while the conventional rhetoric of occupational health demands a faith in labour-management co-operation, the traditional position in labour relations assigns to management's rights all questions that relate to the most effective means of preventing industrial disease.

An additional concern over the viability of the collective agreement to deal with issues of health and safety pertains to the fact that the terms of the collective agreement are fixed for the life of the agreement; however, safety issues can arise daily. As stated by one unionist: "Working conditions change from day to day and can readily deteriorate. You cannot leave the health and safety problems for two or three years and then take them to the bargaining table to try and solve them" (Heard, 1978, p.112). Hence the importance of mechanisms like the grievance procedure, right-to-refuse work and joint committees, which enable health and safety issues to be dealt with on a daily ongoing

basis. The right to renegotiate the collective agreement before it expires is also a policy option that could be made available in times of the discovery of major hazards, just as unions have pushed for it to be renegotiable in times of major technological change that could not have been foreseen at the time of the original negotiations.

A more fundamental weakness of the collective bargaining mechanism is that it only applies to a certain portion of the workforce. While it is true that all workers in the bargaining unit are covered by the terms of the collective agreement and must be represented by the union (whether or not they are union members), it is obviously the case that not all workers are covered by collective agreements. As will be indicated subsequently, however, in Canadian manufacturing where occupational exposure to asbestos is most prevalent, the vast majority of workers are covered by a collective agreement, although they may not be union members.

Notes

1. At this stage one can only speculate on whether health and safety are emphasized more by younger or older workers. Older workers tend to have family commitments and casual impression suggests that they are more risk averse. However, they may also tend to regard current health hazards as trivial compared to their past exposure and psychologically they may discount the hazards they are constantly exposed to so as to minimize the stress associated with working in such an environment.
2. Unfortunately the published data does not distinguish between strikes over health as opposed to safety issues. Presumably most were over safety issues since that is the phrasing used in the original data source (with the exception of the 1978 strike between the United Steelworkers and Canadian Mine Enterprises which was over safety and health conditions.) In addition, the data refer to recorded strikes and lockouts which amount to ten or more person-days and one-half or more working days. The larger stoppages (which are the ones referred to in Table 5.1) also have to involve 100 or more workers. Thus smaller strikes are not included and there is a distinct possibility that brief shutdowns over a health issue would never be recorded. The four work stoppages at Certified Brakes in 1979 and 1980, referred to in Appendix D, for example, are not included in Table 5.1.

VI. EVIDENCE ON EXTENT OF COLLECTIVE BARGAINING FOR EXPOSED WORKERS

Given the potential importance of the collective bargaining mechanism in the area of occupational health and safety, it is important to know the extent of occupational exposure, the extent of collective agreement coverage for such workers and the types of collective agreement provisions negotiated. Unfortunately such information is not readily available; however, it is possible to provide a limited picture.

Occupational Exposure to Asbestos

As indicated in the Ontario Ministry of Labour submission (1981, p.50) to the Royal Commission on Asbestos, "The data required to prepare a comprehensive description of asbestos exposure in Ontario are not available." The submission (p.8) did indicate, however, that as of September 1980 approximately 13,000 workers, mostly in manufacturing, were under medical surveillance for asbestos. This does not include a small number who may be involved in the direct mining of asbestos, nor an indeterminant number who may be exposed to asbestos in the mining of other substances, in the building in which they work, or in construction. It is known, however, that the approximately 700 members of the International Association of Heat and Frost Insulators and Asbestos Workers in the construction sector are also under medical surveillance.

The Ministry submission did provide a list of the 191 companies with employees who were exposed to asbestos and under medical surveillance by the Occupational Health Branch, as of September 1980 (hereafter referred to as the medical surveillance list as given in Appendix B to this study).

In addition, the submission (Table 1, p.7) singled out a list of fifteen asbestos product manufacturers that has since been updated to a list of 18 firms (hereafter referred to as the major manufacturers list, as given in Table 6.1 below).

Extent of Collective Bargaining for Exposed Workers

Unfortunately it is not possible to determine the extent to which workers under either the medical surveillance list or the major manufacturers list are covered by a collective agreement. However, it is possible to ascertain whether or not a union is present in the companies on both lists.

The union presence can be determined by whether or not the company has a collective agreement on file in the Ontario Ministry of Labour collective agreements library. The presence of a union does not indicate the extent of unionization in the establishment, nor whether the particular exposed workers are covered by the collective agreement. However, in the manufacturing sector, which is where most of the exposed workers are employed, it is probably reasonable to assume that the exposed workers are covered (i.e., they are blue-collar rather than white-collar workers, and the former are more likely to be covered). If they are not covered this is likely to be voluntary on their part (e.g., professionals), and they probably have a reasonable degree of individual bargaining power. In addition, the presence of a union is likely to have an effect on their working conditions even if they are not covered by the collective agreement, in the sense that management is likely to extend union benefits to non-covered employees. In essence, the presence of a union in the company (especially if the

TABLE 6.1

UNION PRESENCE FOR WORKERS UNDER MEDICAL SURVEILLANCE FOR ASBESTOS, ONTARIO, 1980
(Major Manufacturing Firms)[a]

Company	Location	Employees Exposed[b]	Union Presence[c] (1=Yes)	Employees in Bargaining Unit(s)[d]
Zone 1 (Peterborough Area)		(1)	(2)	(3)
1. Abex Industries Ltd.	Lindsay	134	1	112
2. Canadian Durabla Ltd.	Belleville	11	0	0
3. Raybestos-Manhattan Ltd.	Peterborough	126	1	153
4. Scott Laboratories	Pickering	10	1	8
Proportion in Company with Union[e]		.961	.750	
Zone 2 (Kingston-Ottawa Area)				
5. Applied Insulation Co. Ltd.[f]	Gloucester	2	0	0
6. Atomic Energy of Canada Ltd.[g]	Ottawa	n.a.	0	0
7. Insul-Coustics Ltd.[f]	Gloucester	n.a.	0	0
Proportion in Company with Union[e]		.000		
Zone 6 (Toronto Area)				
8. Able Gasket and Materials Ltd.	Vaughan	16	0	0
9. Cdn Johns-Mansville Co. Ltd.[h]	Scarborough	300	1	454
10. Certified Brakes	Rexdale	316	1	475
11. Columbia Acoustics & Fireproofing[i]	Mimico	n.a.	0	0
12. Flintkote Co. Canada Ltd.	Toronto	104	1	44
13. Garlock of Canada	Toronto	50	1	120
14. Hill Machine & Asbestos Products	Downsview	11	0	0
15. Mintex Federal	Rexdale	83	0	0
16. Universal Insulations Co. Ltd.	Aurora	31	0	0
17. White and Greer Co. Ltd.[j]	Toronto	n.a.	0	0
Proportion in Company with Union[e]		.845	.400	
Zone 9 (Windsor-Sarnia Area)				
18. Holmes Insulation Ltd.[k]	Sarnia	23	1	74
Proportion in Company with Union[e]		1.000	1.000	
Total Proportion in Company with Union[e]		.873	.444	

Source: Ontario Ministry of Labour collective agreements library and personal correspondence to the Commission. See notes below for details.

Notes: a. The'Major Manufacturing Firms' is an updated list of the'Asbestos Product Manufacturers in Ontario'as originally given in Table 1 of the Ontario Ministry of Labour Submission (1981, p. 7). The update was produced in correspondence to Ms. Linda Kahn, Executive Co-ordinator to the Royal Commission on Asbestos, from the Occupational Health and Safety Division of the Ontario Ministry of Labour, Toronto, 29 June 1981.

b. n.a. denotes information not available

c. The union presence is determined by whether or not the company has a collective agreement on file in the Ontario Ministry of Labour collective agreements library which catalogues all agreements in Ontario.

d. This data was obtained from the collective agreement file for each company, made available from the collective agreements library of the Ontario Ministry of Labour. The exposed employees in companies with a union need not be members of the bargaining unit (there being no way of establishing that fact from the existing files). However, if they are not members it is likely that this is voluntary and they have a reasonable degree of individual bargaining power (eg. professionals). Employees in the bargaining unit could also include employees outside of the location of the exposed employees, as in a province-wide agreement. Zero employees in the bargaining unit signifies that there was no collective agreement.

e. The employees exposed column is calculated for each zone as the number of employees who are exposed to asbestos and who are in a company with a union divided by the total number of employees who are exposed to asbestos whether they are in a company with a union or not. This is a rough measure of the proportion of exposed employees who are in a unionized company and hence who are either covered by a collective agreement or who probably have a reasonable degree of individual bargaining power. For the union presence column this is simply the number of companies under medical surveillance that have a union present, divided by the total number of companies (i.e., the proportion of 1's in the column).

f. Not on medical surveillance list of Appendix B because the firm stopped installing asbestos insulation. However, because the firm is involved in insulation removal they are back on surveillance list (information provided by Mr. Ron Daniels, Researcher, Royal Commission on Asbestos, 28 September 1981).

g. Not on medical surveillance List of Appendix B because under federal jurisdiction.

h. Use of asbestos discontinued as of September 1980.

i. Not listed in files of either the Occupational Health Branch or the Industrial Health and Safety Branch of the Ontario Ministry of Labour.

j. Discontinued use of asbestos in 1974. Workers are included in a medical surveillance program of Asbestos Workers Union - Local 95.

k. Discontinued use of asbestos in 1973.

bargaining unit is sizable relative to the number of exposed workers) is likely to mean that the exposed worker has a substantial degree of union protection emanating from the collective agreement.

Table 6.1, column 1, indicates that for workers in high-potential-exposure firms, unionization is quite prominent. Overall, 87.3 percent of exposed workers are in companies where a union is present. As column 2 indicates, the proportion of companies (as opposed to exposed employees) with a union is much smaller, specifically 44.4 percent. However, the nonunion companies tend to have fewer employees; hence, the majority of exposed employees have a union present. The last column indicates that the number of employees in the bargaining unit tends to be large in companies with a large number of exposed employees, suggesting that the exposed employees are more likely to be covered by the collective agreement.

Appendix B contains similar calculations for the larger group of firms that have employees under medical surveillance for asbestos exposure (excluding the major manufacturing firms dealt with separately in Table 6.1). The results indicate a fairly strong union presence with 74.5 percent of exposed workers in companies with a union, and 42.2 of the companies with exposed workers having a union. The union presence, however, appears not as strong as in the major manufacturers list of Table 6.1.

Some perspective on these numbers can be obtained by relating them to the extent of unionization and collective bargaining coverage for workers in general. As of 1979 in Canada the proportion of workers who were unionized was approximately 30 percent in all industries and

41 percent in manufacturing (Statistics Canada, 1981, p.65). However, many members of the bargaining unit, and hence who have to be covered by the collective agreement, are not union members. Specifically, the proportion of non-office workers who were covered by a collective agreement was 72 percent in all industries and 75 percent in manufacturing (Labour Canada, 1980, p.80, 83). Thus the large presence of collective agreements for workers who are under medical surveillance for exposure to asbestos reflects the importance of collective agreements in the sector in which these workers predominate -- non-office manufacturing.

It is not really possible to speculate on whether workers exposed to asbestos are more likely or less likely to be covered by a collective agreement than are workers in the same sector who are not exposed to asbestos. What can be said is that such exposed workers are likely to be covered by a collective agreement and that those who work for the major manufacturers (Table 6.1) are even more likely to be in a situation with a collective agreement. For this reason, unions and collective bargaining become a potentially important mechanism for dealing with occupational hazards like asbestos at the workplace.

This importance is accentuated when one considers that the effect of the collective agreement probably extends to workers not covered by the agreement. This is so because even for workers not covered by a collective agreement, management will often emulate the results that would prevail if a collective agreement were present. They do this to avoid the threat of unionization or to maintain internal equity between covered and non-covered employees. In essence, most workers in

manufacturing, which is where most exposed workers are employed, are either directly covered by a collective agreement, or indirectly affected by it.

Provisions in Collective Agreements

For those firms in either the surveillance list or the major manufacturer list that have 200 or more employees it is possible to get information of a very general nature on the health and safety provisions in their collective agreements. Such information is provided in Table 6.2. The tabulation differs somewhat from the previous two lists of Table 6.1 and Appendix B because the listing in Table 6.2 is by collective agreement, and there may be more than one collective agreement in each company. The relevant health and safety provisions were selected from numerous standardized provisions that are coded by the Ministry; in that sense they would represent typical provisions, with unusual provisions not being coded. In some cases the tabulations of Table 6.2 can be compared with the results of Steinberg (1978) in his analysis of health and safety clauses in collective agreements across Canada, excluding construction, railways, agriculture and clerical employees, based on the McGill University Labour Agreements Data Bank.

Table 6.2 indicates that the main unions involved who represent workers exposed to asbestos (with the proportion of the number exposed indicated afterwards) can be calculated as: Steelworkers 43.7 percent; Autoworkers 31.0 percent; Rubberworkers 8.4 percent; Energy and Chemical Workers 6.6 percent; Machinists 3.8 percent; and Electrical Workers (IUE) 2.5 percent.

Twenty of the 33 agreements make provisions for a safety committee, 13 do not. This prevalence of committees in 61 percent of the agreements

Table 6.2

HEALTH AND SAFETY PROVISIONS BY COLLECTIVE AGREEMENT IN FIRMS WITH 200 EMPLOYEES OR MORE AND UNDER MEDICAL SURVEILLANCE, ONTARIO, JULY 1981

(1= Provision exists)

Company/Union	Employees in Bargaining Unit	Employees Exposed	Safety Committee Provision	Safety Equipment Supplied	Workers Comp. Supp.	Supp. Hosp. Ins.	Major Medical or Comp. Benefit Plan	Long-term Disability Benefit Plan
Zone 2 (Kingston-Ottawa Area)								
Alcan/Machinists	312	2	1	1	0	1	0	1
Alcan/Steelworkers	876		1	1	0	1	0	1
Kingston Psych. Hosp./Ont. Service Employees	6,307	4	0	1	1	0	1	1
Zone 3 (Northern Ontario)								
Abitibi Paper/Paperworkers	236	75	0	1	0	0	1	1
Algoma Steel/Steelworkers	6,900	2,500	1	1	0	0	0	1
Zone 4 (Hamilton Area)								
Rheem Canada/Steelworkers	208	30[b]	1	1	0	0	1	0
Westinghouse/Electrical Workers (UE)	280	20	0	0	0	0	1	1
Westinghouse/Electrical Workers (UE)	1,723		1	1	0	0	1	1
Zone 5 (Brantford-Niagara Falls Area)								
General Motors/Auto Workers	26,000	1,780	1	1	0	1	0	1
Harding Carpet/Textile and Chemical	236	40	0	0	0	0	1	0
Zone 6 (Toronto Area)								
C.I.L. Paints/Steelworkers	217	89	1	1	1	0	0	1
Cdn. Coleman/Steelworkers	291	39	1	1	0	0	1	0
Cdn. Gen. Elec./Electrical Workers (IUE)	1,532	190	1	1	0	1	1	1

Company/Union	Employees in Bargaining Unit	Employees Exposed	Safety Committee Provision	Safety Equipment Supplied	Workers Comp. Supp.	Supp. Hosp. Ins.	Major Medical or Comp. Benefit Plan	Long-term Disability Benefit Plan
Zone 6 (Toronto Area) -- cont'd								
Cdn. Johns Manville[a]/Energy and Chemical Workers	445	300[c]	1	1	0	1	1	0
Cert. Brakes[a]/Steelworkers	475	316	1	1	0	0	0	1
Crouse-Hinds Can./Autoworkers	360	72	1	0	0	0	1	0
Goodyear Can./Rubber Workers	1,450	136	1	1	0	1	1	0
Gulf Can. Prod./Energy and Chemical Workers	400	9	1	1	1	1	1	1
Lever Detergents/Teamsters	410	11	1	0	0	1	1	1
North York Bd. of Ed./Carpenters	220	35	1	0	1	1	1	1
Seiberling Can./Rubber Workers	282	300	1	1	0	1	1	0
Toronto Hydro/Pub. Empl.(CUPE)	460	60	1	1	1	1	1	0
Zone 7 (Owen Sound Area)								
Collingwood Shipyards/ Steelworkers	800	25	1	1	0	1	1	0
PPG Ind. Can./Glass & Ceramic	390	15	1	1	0	0	1	0
Zone 8 (London-Stratford Area)								
Firestone Text./United Textile	245	25	0	0	0	1	0	0
Richards-Wilcox/Machinists	320	273	1	1	0	1	1	0
Zone 9 (Windsor-Sarnia Area)								
Bendix Corp./Auto Workers	500	480	0	1	0	1	1	0
Zone 10 (Kitchener Area)								
Franklin Manufact./Machinists	570	13	1	1	0	1	1	0
B.F. Goodrich/Rubber Workers	761	194	1	0	0	1	1	0
B.F. Goodrich/Rubber Workers	563		1	0	0	1	1	0

Company/Union	Employees in Bargaining Unit	Employees Exposed	Safety Committee Provision	Safety Equipment Supplied	Workers Comp. Supp.	Supp. Hosp. Ins.	Major Medical or Comp. Benefit Plan	Long-term Disability Benefit Plan
Zone 10 (Kitchener Area) -- cont'd								
Pirelli Cables/Steelworkers	220	3	1	0	0	1	1	0
Uniroyal Chemical Div./ Steelworkers	225	217	1	1	0	1	1	0
Walker Exhausts/Steelworkers	444	66	1	0	0	1	0	0
Totals	54,658	7,319	27	23	5	21	25	14
Proportion with Provision			.818	.697	.152	.636	.758	.424

Source: Special data request from the Ontario Ministry of Labour, Research Branch, (Program No.LRCBAERI, Report No.LRBCBA9P, July 20, 1981.)

The list of companies is from Table 6.1 and Appendix B.

Notes: a. Denotes that the company is on the major manufacturers list of Table 6.1; otherwise it is from the medical surveillance list of Appendix B.

b. Denotes ex-exposure workers.

c. In the original medical surveillance list 500 exposed employees were listed, but 300 were listed in the updated major manufacturers list. The later figure was used here because it is the most recent.

involving workers exposed to asbestos is higher than the 46 percent of all Canadian contracts containing a safety committee provision as indicated in Steinberg's 1978 study. However, the difference is not great when one considers that Steinberg's data included contracts with less than 200 employees (which would presumably be less likely to have a formal committee) and his data was at least three years older (when committees were probably less prevalent).

The fact that provisions for a health and safety committee were not much more prevalent in contracts in establishments employing workers under medical surveillance for asbestos than they were in general contracts throughout Canada does not mean that safety committees are not important to exposed workers. Such committees in Ontario are mandated by law and hence there may be no great need to deal with them specifically in the collective agreement. However, the provision for a safety committee in the collective agreement may provide benefits to the workforce, over and above those provided by legislated committees: workers can have more information on the committees; it is possible to bargain for items to be dealt with by the committee above the minimum mandated by the legislation; and the grievance procedure can be utilized. It is also the case that pay for committee members can be negotiated: although not shown on the table, of the 20 agreements that make provision for a safety committee, 11 make provision for pay on such committees.

Twenty-three of the 33 agreements (i.e., 70 percent) state that the employer shall provide safety equipment at no cost. This is considerably higher than the 27 percent of the clauses in all Canadian agreements found by Steinberg (1978) to contain a provision for safety equipment.

This suggests that Ontario workers under medical surveillance for asbestos are more likely than unionized workers in general to be in establishments where safety equipment is provided. Unions usually do not consider the provision of safety equipment the best way to deal with the problem, however, because it can be uncomfortable to wear, provide a constant and tension-creating reminder of the prevalence of hazards, and it can create other hazards such as breathing problems with respirators. For this reason unions prefer removing the hazard rather than adapting to it.

The other provisions of Table 6.2 refer to compensation or health and medical provisions. Worker's compensation supplements were present in only 5 of the 33 agreements. Supplementary hospital insurance (e.g., Blue Cross) was present in 20 agreements, major medical insurance in 25 agreements, and long-term disability benefits in 14 agreements.

Some common health-related provisions are not listed in Table 6.2 because they tend to be always present. Specifically, all bargaining units negotiated employer contribution to OHIP, with the employer paying 100 percent of the premium in 29 of the 33 units. Similarly, all units negotiated employer contributions to life insurance, with the employer paying 100 percent of the premium in 27 of the 33 units. The average amount of benefits in the 23 agreements that specified a dollar figure is approximately 11,500 dollars.

In other cases, few, if any, of the agreements had certain provisions that one might expect. Specifically, only two had negotiated premium pay for hazardous work and neither of these referred to asbestos-related hazards. Clearly, explicit pay premiums are not negotiated for

workers exposed to asbestos hazards, although such premiums may still be part of the wage negotiated for particular job classifications where such hazards are greatest.

Unfortunately, it is not possible to get coded information on possible clauses in collective agreements that may be peculiar to asbestos hazards, since by definition only the more standard clauses are coded. Nor is it possible to say precisely whether the standard clauses are more prevalent in agreements that cover exposed asbestos workers relative to all workers. However it appears that clauses pertaining to occupational health and safety hazards are not really prevalent in collective agreements (otherwise there would be more of them in the list of standard clauses to be coded). Those that are there tend to be fairly general provisions referring to a safety committee (that already is required by law) or employer contribution to general health, medical or disability plans.

After his analysis of health and safety provisions in Canadian collective agreements, Steinberg (1978, pp. 129-130) also concluded that:

> ...if the limited scope of the clauses, and the limited incidence indicates anything it is that labour-management relations has not fully come to terms with these issues as yet... The union, the collective bargaining process, and its outcome and reflection in the labour agreement, act to police and mitigate not to co-determine. Typically, therefore, the major role in regulating against 'hazard' in the construction and management of the workplace rests with government. This is not a complaint... yet it is to suggest that there must be more room for joint labour-management approaches than is now being utilized.

Our own limited analysis suggests that this is also the case for Ontario workers exposed to potential asbestos hazards.

Arbitration Awards

Arbitration awards provide a further source of information about union activity related to health and safety, providing examples of contract language on health and safety matters and giving some indication about the frequency of dispute about these issues between management and labour.

The cases reported in the two series of Labour Arbitration Cases give some indication of the frequency and type of health and safety grievances. This report series includes cases from across Canada. Some limitations on this series as a source should be noted: the cases reported are selected by editors and do not include all arbitration awards. Moreover, the number of arbitration awards does not reflect the number of health and safety grievances settled in the grievance procedure without advancing to the arbitration stage.

A survey of the reports (up to Volume 28 of the second series) reveals the limited number of health and safety grievances: fifty-four in all (see Appendix C).

Moreover, only three of these cases related to health hazards caused by dangerous substances(as opposed to safety): two related to lead (Re General Motors Ltd. and United Automobile Workers, Local 222 (1980), 24 L.A.C. (2d) 388 (Palmer); Re Cominco Ltd. and United Steelworkers, Local 480 (1977), 14 L.A.C. (2d) 283 (Chertkow)); and one to radiation (Re St. Paul's Hospital and Registered Nurses' Association of British Columbia (1980), 28 L.A.C. (2d) 51 (Vickers)). The General Motors case dealt with the validity of an employer rule which excluded

females of child bearing capacity from the company's battery department because of lead exposure. The union, unsuccessfully, challenged the rule because it discriminated against male workers. The Cominco case dealt with transfer of an employee to a job in a lead smelter after he had suffered two attacks of lead absorption while working in that area. The union relied on the collective agreement and past practice of the employer to convince the arbitrator that the employee had an option whether to return to the leaded area. The St. Paul's Hospital case also dealt with a transfer. The grievor, a nurse in the radiology department, successfully grieved that she should be returned to the radiology department. The arbitrator characterized her transfer as a demotion which was unauthorized, because there was no evidence that the grievor would be a health and safety risk to herself or others while working in her previous job.

There seem to be more cases related to health hazards than those reported in the L.A.C.'s. For example, a decision of the British Columbia Labour Relations Board, reviewing an arbitration award, dealt with refusal of unsafe work because of asbestos dust in the work-place (Cassiar Asbestos Corp. v. United Steelworkers of America, Local 6536 (1976), 2 Can. L.R.B.R. 476).

The majority of health and safety cases deal with discipline, arising when an employee is disciplined for insubordination because of refusing to follow a supervisor's order. Although the expected practice is to "work now, grieve later," there is an exception to that rule when the order pertains to work which is dangerous to the employee's health and safety or requires an employee to commit an unlawful act. In such cases, arbitrators recognize a right to refuse unsafe work, based on the principle set out in Re Steel Co. of Canada and United Steelworkers, Local

1005 (1973), 4 L.A.C. (2d) 315 (Johnston),p.318: the grievance should be upheld if the employee had an honest belief that the work was unsafe and the belief was reasonable in the circumstances. The employee must also raise the question of safety with his supervisor at the first opportunity.

Twenty-two reported cases dealt with this safety exception to the employer's right to discipline for insubordination. Seven other cases were related, in that they dealt with refusals of unsafe work followed by an employee claim for remuneration to cover the period of the refusal. The general principle appears to be that the employee is not entitled to be paid if he does not work (Re Domtar Chemicals Ltd. and International Chemical Workers, Local 682 (1975), 8 L.A.C. (2d) 346 (Weatherill), p.349).

None of these refusal cases appear to have dealt with a health hazard such as asbestos or lead (although in a few cases no facts were reported). The concern was over immediate physical danger: from a falling object, fire, unsafe equipment, or heat.

The remaining cases pertained to a variety of factors: whether the employer had authority to set safety rules (eight cases); authority to re-assign or discharge for safety reasons (eight cases); discipline for conduct related to safety (two cases); scope of the employer's obligation to provide safety equipment (five cases); and rights under The Occupational Health and Safety Act (two cases).

The principles established by these cases need not be exhaustively canvassed, although a brief summary may be helpful. Some of the cases, such as those dealing with the employer's obligation to provide safety equipment, turn on contract language.

With regard to employer safety rules, the dispute normally centres on the employer's right to set such rules. In the absence of a collective agreement clause limiting management's discretion, it is well-established

that the employer can establish reasonable rules and enforce them through disciplinary action. For example, the employer may establish safety rules requiring the wearing of protective clothing or forbidding the wearing of a beard because of interference with a respirator. The reasonableness of the requirement will be up to the employer to establish (for example, Re Koehring Waterous Ltd. and International Association of Machinists, Lodge 1105 (1974), 6 L.A.C. (2d) 83 (O'Shea); Re Corporation of Borough of Etobicoke and International Association of Fire Fighters, Local 1137 (1974), 6 L.A.C. (2d) 251 (Rayner)).

The employer's ability to set reasonable rules would probably justify an employer ban on smoking in a workplace where asbestos is used. Certainly, employers have imposed such a rule. For example, Johns-Mansville's rule is discussed in Ross, Reasons, and Patterson, 1981, p.25; the rule at Advocate Mines in Baie Verte, Newfoundland is discussed in the Globe and Mail, July 20, 1980, p.9. The reasonableness of such a rule would require the employer to show a connection between smoking and damage to health.

Cases dealing with re-assignment for safety reasons show that the employer has a right to re-assign or demote, subject to collective agreement provisions. Normally, in a demotion, arbitrators are concerned with the question whether the employee working on the job is a hazard to himself or to other employees (Re St.Paul's Hospital and Registered Nurses' Association of British Columbia (1980), 28 L.A.C. (2d) 51 (Vickers)). In the absence of another available job, the employer may be justified in discharging the employee unable to perform because of the health or safety hazard (Re Ontario Hydro Employees Union, Local 1000, CUPE and Hydro-Electric Power Commission of Ontario (1969), 20 L.A.C. 432 (Hanrahan)).

The experience in the United States appears similar to that in Canada, with few arbitration cases dealing with health, as opposed to safety, hazards. Again, the preoccupation is with insubordination cases.[1]

Labour Board Remedies

It is conceivable that an employee might bring a complaint before the Labour Relations Board alleging that his union has breached its duty of fair representation in failing to negotiate protective language in the collective agreement or in failing to enforce health and safety language. The Ontario Labour Relations Act, R.S.O. 1980, c.228,s. 68 imposes a duty on unions forbidding them to act in a manner that is "arbitrary, discriminatory or in bad faith" in the representation of employees in the bargaining unit. Remedies available include damages or a cease and desist order.

In the United States where the duty of fair representation is court-enforced, there is increasing litigation against unions, based on the failure to obtain adequate health and safety provisions in collective agreements or to enforce such provisions once obtained (Drapkin and Davis, 1981, pp.636-640).

In Ontario, union failure to obtain health and safety clauses is not likely to result in a successful complaint, for the Board is reluctant to evaluate the adequacy of provisions obtained through collective bargaining. The decision as to the tradeoffs to be made in bargaining (whether between bargaining unit members or vis à vis management's offers) is usually left to the union (Ford Motor Co.v. Huffman (1953), 345 U.S. 330; Group of Seagrams Employees v. Distillery, Winery, Soft Drink and Allied Workers Union, Local 604 and B.C. Distillery Co. Ltd. (1978), 1 Can. L.R.B.R. 375 (B.C.L.R.B.)).

Similarly, in considering whether a union has complied with its duty in enforcing contract language, the Board is wary of imposing unreasonable demands on the union. The union may even be negligent in enforcing the agreement, so long as it does not act arbitrarily (Prines-domu v. CUPE Local 1000 and Ontario Hydro Employees Union (1975), 2 Can. L.R.B.R. 310 at 316 (O.L.R.B.)).

Notes

1. Buffalo Color Corp. and United Steelworkers of America, Local 12230, 80-1 ARB Para. 8222 (Denson) (aniline); Alside Inc., Akron, Ohio and United Steelworkers, Local 5144, 80-1 ARB Para. 8087 (Dworkin) (smoke and toxic fumes from styrofoam); Morgan Engineering Co. and Morgan Engineering Employees Inc., 77-1 ARB 8021 (Gibson) (over-spray paint fumes); United States Steel Corp., Lorain Cuyahoga Works, United Steelworkers, Local 1104, 78-1 ARB Para. 8213 (Rakas) (Coke Oven batteries); Bunker Hill Co. and United Steelworkers, Local 7854, 1975 ARB Para. 8276 (Kleinsonge) (sulphuric acid mist); Bethlehem Mines Corp and United Mines Workers, Local 1368, District 2,74-2 ARB Para. 8367 (Rimer) (dust and smoke); Barbeton Citizens Hospital Co. and American Federation of State, County and Municipal Employees, District Council 11, Local 684, 72-1 ARB Para. 8355 (Marshall) (isotopes).

VII. LEGISLATIVE AND REGULATORY MECHANISMS

Although collective bargaining provides one mechanism for regulating occupational health and safety, there are others. To the extent that they provide an acceptable level of health and safety or provide an easier method of attaining objectives, one can expect that unions or individuals will be less likely to express demands for better working conditions through collective bargaining.

The most obvious regulatory mechanism is government intervention in the form of occupational health and safety legislation. This initiative may take one of two broad forms: preventive or compensatory. As well, there may be some impact on occupational health and safety through criminal prosecution, negligence awards in the courts, and individual compliance with professional charters and codes of ethics, such as that of the Association of Professional Engineers of Ontario.

Legislative Intervention

Legislative initiatives to regulate occupational health and safety have been numerous and longstanding. Preventive efforts began with the early Factory Act in 1884. From that time to present, a central feature of legislation has been the prescription of standards of conduct, which have become increasingly elaborate. Enforcement has been through government inspectors, who have powers to order compliance with the Act or regulations, including the power to order shutdown of machinery or the workplace. Ultimate enforcement has been through criminal prosecution in the courts.

This enforcement mechanism has been altered somewhat by The

Occupational Health and Safety Act of 1978, R.S.O. 1980, c.321 and its counterparts in other jurisdictions, which now emphasize worker participation and the internal responsibility system. The Ontario Act will be discussed in detail in the following section. The regulatory objective remains essentially the same under the new legislation, despite the change in enforcement: prevention of disease and accidents through imposition of government standards.

Complementing this legislation, and equally longstanding, have been government initiatives with a compensatory, rather than preventive, purpose. The Workmen's Compensation Act, R.S.O. 1980, c.539, provides compensation to injured workers on a no-fault basis. There is a prevention aspect, as well, as most employers are required to contribute to an Accident Fund (s.4). They are grouped into classes and premiums are calculated on the basis of the claims experience of the class. As well, employers can be subjected to penalty assessments (s.91(4), (7)). Other employers covered by the Act are self-insurers (s.5, Sch.2).

Workers' compensation legislation was first enacted to put an end to the obstacles faced by injured workers seeking compensation from their employers in damage actions. These included the bars to recovery posed by contributory negligence, voluntary assumption of risk, and fellow servant rules, as well as the psychological block against undertaking a lawsuit. In return for assured compensation, the employee surrendered his common law right to sue his employer for employment-related injury (Weiler, 1980, pp.14-15).

Workers' Compensation

The compensation scheme alone appears to have been inadequate to

reduce the incidence of injury, despite the potential deterrent effect of higher premiums associated with a high claim rate. Employers are grouped, rather than assessed individually, so that individual employers with particularly bad records do not bear the full cost of the injuries caused. While there are provisions for penalty assessments and experience rating under the Ontario legislation, their use is rare (Manga, Broyles and Reschenthaler, 1981, p.278).

More significantly, workers' compensation legislation has failed to deal adequately with the problem of industrial disease. Although an employee disabled by an industrial disease is eligible to claim compensation under the Act, he must show that the disease is characteristic of his employment, that it is due to his employment and that he is disabled thereby (ss. 1(1)(n) and 122). There is a presumption that the disease is compensable with regard to certain diseases contracted in the course of specified processes set out in Schedule 3 of the Act.

Neither asbestosis nor mesothelioma, commonly believed to be caused by asbestos exposure, are expressly found in Schedule 3. There is a reference to pneumoconiosis, which includes asbestosis. However, no particular process is mentioned in column II of Schedule 3. The Board accepts asbestosis under ss. 1(1)(n) and 122 as peculiar to and characteristic of a process, trade, or occupation involving exposure to asbestos. This requires proof of a "clear and adequate history of occupational exposure to asbestos" and "a diagnosis of frank asbestosis" (Workmen's Compensation Board, Submission, p. 6). Both questions are open to debate. Ison notes the lack of unanimity about diagnostic norms for asbestosis (1978, p. 4), and there is room for disagreement about the "adequacy" of exposure (Ison, 1978, p. 15).

The Workmen's Compensation Board has issued policy directives setting out conditions under which lung cancer, mesothelioma and gastro-intestinal tract cancer will be compensable industrial diseases, although these are quite recent, having been issued in 1976 and 1978. Even then, the eligibility conditions are not easy to meet. For mesothelioma, the employee must show ten years of occupational exposure and a fifteen-year gap between first exposure to asbestos and the appearance of the disease; for lung cancer victims, ten years between exposure and disease and ten years of exposure. Claims which do not fall within the directives or which relate to other cancers must be judged individually.[1] Often the employee has difficult problems to prove causation from employment, if exposure has been intermittent or brief, or if the disease is one which may have several causes.

There is also an Assistance Programme for Asbestos Workers (Ontario W.C.B., Directive 8), designed to remove workers from asbestos exposure before significant physiological impairment or to assist asbestosis victims. Normally, a worker must be exposed to asbestos for a minimum of ten years. Assistance will be provided to help the worker relocate to a new job, with suitable retraining provided as necessary. Wage differentials in the new job are protected for a year and then reviewed.

Preventive Efforts

The more detailed regulatory statutes often started as protective legislation, especially for women and children (Stellman, 1977, pp. 36, 176). Their increasing detail and expanded coverage are a response to perceived inadequacies in both the private market and the legislated compensation scheme to prevent or reduce the incidence of occupational injury and disease. Problems of information about risk and lack of

mobility reduce the ability of workers to bargain over health and safety matters. Often, the enterprise does not bear all the costs of injury and disease caused by its operations, reducing the likelihood that it will try to reduce the injury rate (Reschenthaler, 1979, pp.10-17). Legislative intervention signals a conclusion that there is a perceived minimum standard of health or safety to which all workers are entitled, and that the standard is not being met through private mechanisms.

Preventive legislation is not without problems, however. Inspections are relatively infrequent. Ontario has over 60,000 workplaces, while the corps of inspectors is only about 338 (Ontario, Ministry of Labour, Submission, pp. 31-33). Their surveillance of the workplace is necessarily limited, with frequency of visits ranging from once a month in a high risk mine to yearly or every two years in some industrial establishments (Ontario, Ministry of Labour, Submission, pp. 41-42). Conditions safe one day may change the next. Furthermore, inspectors do not carry out air sampling. That is left to the Industrial Hygiene Branch of the Ministry and, again, visits are infrequent. There are fifteen technicians trained to do optical counts of fibres in the air. Any expansion of service would necessarily increase the costs.

Along with surveillance go sanction problems. Ultimate enforcement has occurred either by shutting down dangerous machinery or workplaces or by prosecution. Courts are relucant to convict without a body (Ison, 1975, p.203) and fines are not particularly large. In 1979-80, there were 423 convictions under OHSA and fines in 417 of these (excluding mining) totalled $169,740 (Ontario, Ministry of Labour, Annual Report, 1979-80).[2]

There are also information problems, which restrict the efficacy of legislation. This is particularly true with regard to setting standards to reduce health hazards. Medical and scientific debate is frequent about the dangers posed by toxic substances, the level of safe exposure, and the feasibility of control mechanisms. The result may be inaction or delay, as is evident in the issuance of designated substance regulations under The Occupational Health and Safety Act. Although the Act was proclaimed on October 1, 1979, lead was the only regulated substance as of August, 1981 (O. Reg. 536/81).

Legislators also face the problem of how best to design standards. Detailed prescription may cause individual problems of compliance, imposing excessive costs and employment of mechanisms inconvenient to workers and employers. General performance standards allow more flexibility in compliance, although they may be more difficult for inspectors to enforce (Reschenthaler, 1979, pp. 29-30).

This discussion has assumed that governments are committed to effective regulation. That is not always the case. To the extent that a government is not concerned about occupational health and safety, or is unwilling to provide satisfactory funding for both standard-setting and enforcement, the level of protection for health and safety is reduced (Glasbeek and Rowland, 1979, pp. 517, 520). The use of an internal responsibility system with worker participation may lessen the importance of government support, although at some point government sanctions are necessary to back up both joint committees and individual workers refusing unsafe work.

Tort Liability

There is very limited opportunity to sue in tort for losses caused by asbestos exposure, where exposure is employment related.

Section 14 of The Workmen's Compensation Act bars any action by an employee or his family against the employer for any accident or industrial disease contracted while in the employment of his employer. An employee who contracts asbestosis or mesothelioma because of his work exposure is thus barred from suing the employer, and there seems no way to avoid that conclusion.

One American case, Johns-Manville Corp. v. Contra Costa Superior Court (1980), 612 P. 2d 948 (Calif. S.C.) allowed an employee who developed pneumoconiosis, lung cancer and other asbestos-related disease to sue his employer despite a bar to such actions in the California compensation legislation. The grounds for recovery were narrow, however: the employee could recover damages for the aggravation of his condition caused by the employer's fraudulent concealment of the employee's disease, despite the employer's knowledge both of the existence of the disease and the dangers of asbestos exposure. The case would seem to have little effect in most situations in which an employee might wish to sue his employer, even if an Ontario court could be persuaded to be guided by it in interpreting s.14 of the Ontario Act.

An alternative to suing the employer might be to sue the manufacturer of asbestos used by an employee in his work. This has been a successful course of action in several American cases, the leading one being Borel v. Fibreboard Paper Products Corp. (1973), 493 F.2d 1076 (5th Circ.) (followed in Karjala v. Johns-Manville Products Corp. (1975), 523 F. 2d 155 (8th Circ.)). The case rests on the principle that a manufacturer has a duty to warn of dangers in his product of which he is aware or ought to be aware.

The problems in suing the manufacturer in Ontario are complex. If the manufacturer is a Schedule 1 employer under The Workmen's Compensation Act, it will be argued that the action is barred by s.8(9) of the Act, which prohibits an action against a Schedule 1 employer for an injury for which benefits are payable under the Act. Should it be possible to avoid that obstacle, it may be argued that the manufacturer need only warn the employer, as the purchaser of the product. There would be no obligation to the employee who may come in contact after the product has been removed from its packaging. As well, there are obstacles to recovery based on contributory negligence principles, if the employee smokes or fails to wear a respirator; and voluntary assumption of risk, if he remains at the job knowing of the associated risks. There may be causation problems as well (Note, Harvard L. Rev., 1980, pp. 921-931). Above all, the cost of litigation is a major obstacle to its use.

The Criminal Law

It has also been suggested that the general criminal law provides a way to deal with substandard occupational health and safety conditions. Glasbeek and Rowland (1980) have written a lengthy article setting out sections of the Criminal Code, R.S.C. 1970, c.C-34, which might be used to prosecute employers for occupational injury or disease, including criminal negligence, assault causing bodily harm, murder, and common nuisance. There are major problems in the use of the criminal law, especially with regard to occupational health problems: causation problems, requiring a link between disease and exposure to a substance like asbestos; showing that the employer had the necessary subjective intent to harm, in offences which require a mental element; proving

that the corporation should bear criminal responsibility; and avoiding procedural problems in pressing charges, such as a stay of prosecution by the Attorney General. Even if these obstacles can be surmounted, serious defects remain in using this approach to regulate occupational health. Courts will be reluctant to convict, except in the most egregious cases where someone has been killed and the employer's conduct is particularly distasteful. The deterrent effect of such a conviction on other employers is likely to be limited, and it will do little to improve workplace conditions on a lasting basis.

Professional Ethics

A final input into the regulation of occupational health and safety arises from professional codes of ethics. For example, an engineer has an obligation under his Code of Ethics to make effective provision for the life and health of a person who may be affected by his work and to correct or report situations of danger to the public. Doctors and nurses also have obligations to protect patients' health, an obligation which extends to plant medical personnnel. Such professional obligations should theoretically lead to whistleblowing or warnings to endangered workers.

The efficacy of such provisions is limited, however. Not all plants have company doctors, while employee distrust of plant medical personnel is not uncommon (Science Council, 1977, pp.47-48). As the Court finding in Johns-Manville Corp. v. Contra Costa Superior Court

suggests, distrust is sometimes warranted.

Even without substandard conduct, medical personnel or engineers may debate about the existence of safe standards or necessary control mechanisms. This is particularly true in hazard recognition, where scientific views of "proof" may be much more rigid than those of politicians (Ison, 1978, p.15).

It has also been frequently stated that professional personnel have not been adequately trained to recognize and address occupational health and safety issues (Berman ,1978, p.95). Ham suggested changes in both medical and engineering training to improve awareness of occupational health (1976 , p.205).

Finally, the ability of engineers, plant medical personnel or industrial hygienists to influence health and safety in a workplace will depend on their access to senior management and the co-operation of that management.

Notes

1. Ontario Workmen's Compensation Board, Policies and Administrative Directives 5 (lung cancer, April 13, 1976); 6 (mesothelioma, April 13, 1976); 9 (gastro-intestinal tract cancer, October 7, 1976); 17 (laryngeal cancer with nickel and asbestos exposure, May 4, 1978).

2. Recent fines under The Occupational Health and Safety Act are not excessive: $5,000. in R. v. Ford Motor Co., where one person was killed and one injured; $3,000. in R. v. Inco (No. 1) (employee injured); $10,000. in R. v. Inco (No. 3) (employee killed) - CCH, Canadian Employment Safety and Health Guide - para. 95,001; 95,007; 95,010.

Surveillance and enforcement of legislation are examined in greater detail in another study for the Royal Commission on Asbestos: G. Bruce Doern, Michael Prince and Garth McNaughton, Living with Contradictions: Health and Safety Regulation and Implementation in Ontario (Toronto: forthcoming 1982).

VIII. EVALUATION OF ONTARIO'S OCCUPATIONAL HEALTH AND SAFETY LEGISLATION (BILL 70)

The Occupational Health and Safety Act, R.S.O. 1980, c.321 (hereinafter OHSA), was enacted in 1978 and came into force on October 1, 1979. This Act, along with the interim Employees' Health and Safety Act, S.O. 1976, c.79 (EHSA) which preceded it, constitute a marked departure from earlier occupational health and safety legislation. The tradition of detailed safety and health regulations remains from earlier legislation, but the Act consolidates these regulations under one unified piece of legislation. Previously, regulations had been found under three separate statutes, addressed to the type of workplace: The Industrial Safety Act, S.O. 1971, c.43; The Construction Safety Act, S.O. 1973, c.47; and Part IX of The Mining Act, R.S.O. 1970, c.274. The responsibility to administer all of these regulations was consolidated in the Occupational Health Division of the Ministry of Labour with the 1976 reforms, ending the previous split between the Ministries of Labour, Natural Resources, and Health.

More significantly, the reforms recognize three new types of worker rights: the right to participate (through joint health and safety committees or through health and safety representatives, depending on the type of workplace); the right to refuse hazardous work; and the right to information about hazards. Each of these reforms will be described and assessed in greater detail later in this study.

Impetus for Legislative Reform

The impetus for the reforms came, in part, from the findings

of the Ham commission, the Royal Commission on the Health and Safety of Workers in Mines, which reported in 1976. Ham wanted to encourage the existing internal responsibility system in the workplace to deal with occupational health and safety problems. He emphasized the need for management to define lines of direct responsibility for proper and safe performance of duties. In addition, he was greatly concerned about the lack of effective worker participation in occupational health and safety, and his recommendations were aimed at increasing such participation, through worker auditors, who would inspect workplace conditions and serious accidents and advise management on hazards (Ham, 1976, pp. 153-156). In addition, he recommended that joint labour-management health and safety committees be appointed in each mine to provide advice and a consultative forum to review the health and safety experience in the workplace (pp.156-158). The report also contained recommendations that workers and their representatives be given increased access to information pertaining to workplace hazards, including government inspectors' reports. As well, the individual's right to refuse unsafe work should be statutorily recognized.

The Ham report provided one focus for union lobbying efforts for statutory reform. The way was made easier, no doubt, by the example of recent legislative reforms in other jurisdictions: Saskatchewan's model Occupational Health and Safety Act of 1972, S.S. 1972, c.86 (now R.S.S. 1978, c.O-1); the American Occupational Safety and Health Act of 1971, 29 U.S.C.§ 651-678; the U.K. Health and Safety at Work Act, 1974, c.37. The details of these Acts will be discussed in Part X. There were also reports in other jurisdictions advocating institutional reforms to increase worker participation,

notably the Gale report in Alberta in 1975, the Robens' Report in the United Kingdom in 1972, and the interim report of the Beaudry Commission in Quebec in 1976.

It has also been suggested by Ashford, in the United States context, that pressure for occupational health and safety reform came, in part, from increasing awareness of environmental issues in the late 1960's, which carried over to concern about the occupational environment. As well, changing demography in the workplace had an impact, with younger, better educated workers more aware of occupational health hazards (Ashford, 1976, pp. 46-47). The rising individual accident rate was also a spur to reform. Manga, Broyles and Reschenthaler have shown that the injury rate increased by 88% between 1968 and 1978 and in all but one year (1969) lost time due to industrial injuries exceeded that lost in work stoppages (p.1). This is true despite serious under-reporting problems (pp.13-16, 46-48).

The main features of both the 1976 and 1978 legislation are modelled on Ham's recommendations, although the 1978 legislation underwent major amendments in the legislative process due to the minority position of the Conservative government. Whereas joint health and safety committees were optional, unless ordered by the Minister of Labour, when the bill was first introduced, the final Act provided for mandatory committees in workplaces with more than twenty workers, subject to certain exceptions (s.8(2)). This amendment reflected dissatisfaction with the experience under the 1976 legislation, where joint committees were also optional and none had been ordered by the Minister. The coverage of the Act was expanded during debate to encompass groups previously excluded (e.g.,Crown employees). The

provision for refusal of unsafe work was amended to remove a subsection recognizing the employer's right to discipline a worker who acted without reasonable grounds.

During the legislative process, trade unions played an active lobbying role. Certain employee groups were consulted by the Ministry before the legislation was drafted (Ontario, Debates, October 18, 1977), and seventeen of fifty-three submissions presented to the Standing Committee on Resources Development were from organized labour. There was also active lobbying of individual members of the Legislature.

Overview of the Legislation

The final version of the Act requires a joint health and safety committee in three situations: a workplace with twenty or more employees; where a regulation pertaining to a designated substance applies to the workplace (regulated pursuant to ss. 22, 41 (2) para. 14), or where the employer is subject to a direction dealing with a dangerous substance under s.20 (s.8(2)).[1] Certain workplaces are excluded: construction projects (which are required to have a worker health and safety representative, instead, under s.7) and a group of perceived "safe" workplaces, such as offices, shops and libraries. Once the proposed regulation making asbestos a designated substance is issued, any workplace to which it applies will be required to have a joint health and safety committee, regardless of its size.

The committee, made up of equal numbers of management and labour representatives, has the power to identify possible hazards to workers; to recommend steps to improve health and safety; and to recommend establishment of programs and measures respecting health and safety. It also

has the right to obtain information from the employer respecting identification of potential or existing hazards of materials, processes or equipment and the health and safety experience and work practices and standards in other industries of which the employer has knowledge (s.8(6)).

One worker representative on the committee must be selected to inspect the physical condition of the workplace "not more often than once a month" (s.8(8)). There is some debate as to the scope of this right to inspect, both with regard to frequency and extent of inspection. The Legal Branch of the Ministry of Labour, in response to a question from a company which had refused to permit a monthly inspection of the whole plant, interpreted s.8(8) to mean that monthly inspections of the whole workplace are not mandatory unless a Director so orders (Interpretations - OHSA, 1978). It seems to have been suggested, as well, that monthly inspections were not required, and that s.8(8) placed a maximum limit on the frequency of inspections (once per month or as the Director directs), but did not confer an affirmative right to inspect at least once a month, if the worker so desired.

Such an interpretation seems inconsistent with the philosophy of internal responsibility underlying the Act, and it is certainly not dictated by the language of the Act. The auditing function of the committee was designed to supplement the government inspector's role by increasing the frequency of inspection of workplace conditions. The inspection also provides an opportunity to identify problems in the workplace to be raised before the joint committee. To say that

the Act does not permit inspection without employer goodwill or special Ministry order seems to undercut the objective. It would also place undue demands on Ministry time. Finally, the interpretation seems inconsistent with the s.8(8) requirement that workers select a representative to carry out inspections. Why do so if there is no right to inspect?

Admittedly, there will be logistical problems in carrying out a monthly inspection by a worker representative in large workplaces where the worker is unfamiliar with many aspects of the workplace. Other mechanisms may have to be tailored, for example, the use of full-time worker auditors (Burkett, 1981, p. 68).

At a minimum, the interpretation of s.8(8) should be clarified. A Code of Practice explaining the rights and purpose of the committee should be considered by the Ministry.

There has also been a suggestion that the Act allows the employees only to inspect the physical surroundings, without testing machines or taking air samples. This might be consistent with a view that worker representatives are best suited to identifying possible accident conditions, but not to identifying health hazards. It would also be consistent with the traditional split in function in government inspections of the workplace between inspectors who do a walkaround type of investigation and the industrial hygienists who do air quality assessments. As well, there is some suggestion that "monitoring" is a technical term (Gale, 1975, p. 73 ; Sask. Reg. 55/81, s. 28).

Nevertheless, an interpretation of the words "physical conditions" which would prevent air monitoring by workers would again reduce the

effectiveness of the worker's inspection. There is no doubt that worker representatives can be trained to monitor air quality. The United Steelworkers have trained worker inspectors to take asbestos samples and to count the samples. Such training would consume about one day for sample taking and up to two weeks for sample taking, counting and recording results. The Steelworkers have trained a worker representative to take samples at Baie Verte, Newfoundland. Moreoever, the Ontario Federation of Labour training course includes instruction in the use of equipment, specifically noise meters and Gas-Tek equipment, for sampling of vapours such as carbon dioxide and formaldehyde. In Saskatchewan, the government trains workers to do air monitoring and leaves primary responsibility to them to do so, freeing up government inspectors (Witt and Early, 1980, p.23).

Formal committee meetings are required once every three months (s. 8(11)). In addition, a worker representative may be involved in the investigation of a refusal of unsafe work (s.23(4)), or inspection of a serious or fatal accident (s.8(9)). He may also be asked to accompany a government inspector on his rounds (s.28(3)).

In order to operate effectively, committees require information about hazards. The Act requires the employer to disclose such information to the committee under s.8(6)(d) and to co-operate with a committee (s.14(2)(d)). As well, the employer is required under the general duty section (s.14(2)(c)) to acquaint a worker with any hazard in the work and in the handling, storage and use of any equipment or biological, chemical, or physical agent. The degree of detail required by these sections is, of course, debatable, particularly when there is scientific controversy over the hazards associated with a substance. Some employers believe that a general warning and

disclosure of hygienic practices are all that is required, but members of the labour movement are dissatisfied with such descriptions (OFL, RCA Transcripts, Vol. 1, p. 31). The knowledge available is, then, largely dependent on the co-operation of the employer and the moral suasion of the Ministry.

There are other, more concretely defined sources of worker information under the Act. Section 9 allows a worker, a committee health and safety representative, or a trade union to obtain an annual summary of data relating to the employer from the Workmen's Compensation Board. The employer must post the summary of information in the workplace. In addition the health and safety committee is entitled to a copy of any orders or reports made by an inspector (s.29(6)). It appears, however, that this does not extend to copies of Air Quality Assessments made by the Industrial Hygiene Branch.

The Ministry is allegedly lacking in enforcement mechanisms to compel more complete disclosure (OFL,Trancripts, Vol. 1,p.317). It tries to persuade employers to disclose information about hazards and air quality by relying on the general duties in s.14(2)(c), to warn employees of hazards and, in s.14(2)(d), to afford assistance and co-operation to a committee. This is not altogether satisfactory, for enforcement would be through criminal prosecution and the duties do not clearly encompass disclosure.

The draft regulation on asbestos, published in the Ontario Gazette on August 16, 1980 and amended September 22, 1981, provides for an expanded committee role and clarifies some of the rights to information. The regulation, which prescribes asbestos as a designated substance and establishes exposure limits, applies to any workplace where asbestos is present and a worker is likely to inhale or ingest the substance. The

construction industry is exempted and special regulations are to apply to it (s.3(2)). An employer is required to conduct an assessment of worker exposure likely to cause inhalation or ingestion of asbestos and, in doing so, is required to consult with the joint health and safety committee. Where the assessment reveals that a worker is likely to inhale or ingest asbestos and his health may be affected, the employer must establish an asbestos control program. This must include engineering controls and work practices to control worker exposure to asbestos, with respiratory equipment to be used only temporarily or if engineering controls are "not reasonable or practical" or do not exist (s.5). The program must also contain methods and procedures to monitor airborne concentrations of asbestos and worker exposure, maintenance of personal exposure records of workers, provision of medical exmainations and tests of a worker at the employer's expense and maintenace of records thereof. Again, the employer must consult with the committee, which may make recommendations respecting the program (s.7). The regulation differs from the Act in specifying that an inspector is empowered to intervene in disputes between an employer and committee by investigating and giving a decision on a dispute (s.9). The regulation, as well, contains various disclosure provisions: the employer must provide a copy of the assessment and asbestos control program to members of the committee and make it available to affected workers (ss. 6, 10); disclosure of health impairment must be made to the worker by a physician conducting medical examinations (s.13); and results of air monitoring under the asbestos control program must be posted, as well as furnished to the committee (s.12). Workers removed from work because of health impairment due to exposure are entitled to compensation for lost earnings to the extent provided by The Workmen's Compensation Act (s.16(2)).

The Occupational Health and Safety Act also recognizes an individual right to refuse dangerous work. Its application, particularly in relation to asbestos, will be considered in Part IX. Before considering that provision, it is appropriate to consider the experience with joint health and safety committees.

Operation of Joint Committees

The legislative prescription of health and safety committees builds on both collective bargaining experience and union policy. The Canadian Labour Congress has recommended that unions negotiate joint health and safety committees (CLC, undated). The Ham report noted that over 90% of workplaces in the mining industry had joint safety committees (p.156). Otherwise, the total number of voluntary committees prior to the legislation is unknown, although the Ministry of Labour, in a study of such committees in 1977-78, indicated that at least 400 were in existence (Ontario, Ministry of Labour, mimeo, 1977-78, p.2). The difference between those committees and the ones created by the legislation lies in the formality of the legislated committees and the specificity of their functions.

An assessment of the efficacy of the joint health and safety committees is difficult to make, as the experience has been limited and empirical evidence of their operations is virtually non-existent. Some cautious generalizations may be attempted, but with the caveat that experience will vary in the 25,000 committees under the legislation (Ontario, Ministry of Labour, mimeo, 1978, p.1). Factors affecting operation will include the age of the committee, frequency of turnover of representatives, the financial position of the company, the general industrial relations climate, and the types of hazards in the workplace.

One overall advantage to joint health and safety committees is the improvement in auditing workplace conditions which should result. Internal inspections should reveal problems of noncompliance with the regulations by those most likely to be adversely affected thereby. The employer, ideally, should address such problems when raised, but if there is a failure to do so, committee meetings provide a further opportunity to press for compliance. When the government inspector arrives for a routine check, he can save time and effort by focusing on problem areas revealed by joint committee minutes or consultation with workers. There is no need for a general inspection if the internal responsibility system is working adequately.

The extent to which committees are performing this function is not known, let alone whether they are going beyond policing the regulations by negotiating standards superior to those legislated. There are cases where the parties have provided for standards superior to those in the legislation. For example, the United Automobile Workers and Crothers Ltd., a tractor manufacturing plant, have negotiated an agreement through the joint health and safety committee for the phasing out of the chemical trichloroethylene, following a refusal to work by three employees because of the level of exposure on December 11, 1980. Similarly, at Polymer, there has been an agreement with the Energy and Chemical Workers Union to set the exposure limit for a chemical below the Threshold Limit Value.

To the extent that workers are reluctant or unable to participate fully in the internal responsibility system, its effectiveness is reduced. Deterrents to participation include lack of training, lack of preparation time, and failure to pay those participating. It is obvious that the training of committee representatives is of vital importance to committee operation. The Occupational Health

and Safety Act and the regulations thereunder contain a mass of important detail, with which the worker inspector needs to be generally familiar if he is to fulfill his inspection and auditing functions. That learning process is not an easy one with regard to safety regulations, but it increases in complexity when the issue is occupational health. Identification and monitoring of chemicals or physical agents or even recognition of their possibly toxic properties is a more difficult task than identifying the lack of a machine guard or railing. More importantly, it is much more intimidating for an unskilled worker to try to acquire the expertise to discuss debatable scientific issues with management (Ontario Federation of Labour, Manual, p.3).

The educative function for worker committee representatives under OHSA has largely been allocated to the Ontario Federation of Labour. With the aid of funding from Wintario beginning in April 1978, the OFL has designed a training program and developed a manual for use therein. It has also developed specific training programs, sometimes for joint management-labour training, directed at particular types of work. As well, it has established a Resource Centre, with a library and audio-visual materials. A newsletter is also being published.

In its first year of funding (1978), 19 instructors were trained, who then trained 200 health and safety representatives in 1979. The present commitment is to train 360 worker instructors who will in turn train ten workers each. In 1980, 134 instructors were trained in either two- or four-week courses.

One of the major problems with the program, according to one of its original co-ordinators, is the lack of payment for those taking the courses. Some funding, at various times, has come from

Canada Manpower, local unions, several companies, and bursaries contributed by the N.D.P. If unions are not willing or able to maintain the salaries of their members taking the instructors' course, which is now for two or four weeks, there is a disincentive to participate. The instructors, in turn, often have to conduct courses for others on their own time, although some unions pay these instructors. The participants in these courses, which are usually held at night, are unpaid (Ontario Federation of Labour, Reports, 1979, 1980).

This lack of pay for participating in health and safety training is detrimental to the program. Other jurisdictions, such as Saskatchewan, Quebec and Sweden impose an obligation on management to subsidize health and safety training. In Saskatchewan, the employer must pay for up to five working days per year if a committee member attends a government training program during working hours (Sask. Reg. 55/81, s.27). In Quebec, a safety representative, who is a worker, is entitled to time off for training programs approved by the Commission de la santé et de la sécurité du travail. Registration, travel and accommodation expenses are borne by the Commission (Occupational Health and Safety Act, S.Q. 1979, s.91). In Sweden, workers attend a twenty- to forty-hour course during working time at employer expense (Witt and Early, 1980, p.26). The cost of employer paid training in Ontario is difficult to estimate, depending on the number of worker representatives on the joint committee, the turnover, and the number of workdays needed each year.

Employers in Ontario are already paying a substantial amount for accident prevention associations under The Workmen's Compensation Act, and these associations have an educative function. However, the Mining Accident Prevention Association (MAPAO) has been criticized for its concentration on servicing employers and failure

to provide adequate training to workers (Burkett, 1981, p.99). The Industrial Accident Prevention Association makes greater integration efforts and has a worker training program, but workers are management selected. The Construction Safety Association provides better integration with labour (Burkett, 1981, p.106). Some of the funds going to these associations could be allocated to payment for workers on courses and ongoing funding to the OFL program.

The Burkett report suggested the need for joint labour-management training, which, in the mining sector, would be provided by a reconstituted MAPAO. It was also suggested that joint training be a condition of further government funding (pp.72, 73). Joint training would undoubtedly be of benefit, as acknowledged by the United Steelworkers to Burkett (p.105), and the OFL has undertaken some joint training efforts, when requested. Often, the information to be communicated is factual and workers' and employers' representatives will have common interests. There is, nevertheless, a place for union training: there may be disagreement on the facts to be communicated or on the need to teach certain skills. As well, health and safety issues involve industrial relations issues, and management and labour will have different interests to protect and different collective agreement language and tactics to consider.

In ongoing activities, as in training, committee members must not be discouraged from carrying out their duties by financial disincentives. To this end, the Act provides that a committee member is entitled to "such time from his work as is necessary" to carry out inspections and accident investigations and attend committee meetings and "the time so spent shall be deemed to be work time for which he shall be paid at his regular or premium rate as may be proper" (s.8(12)). The purpose appears to be to encourage worker participation

by removing financial disincentives. Unfortunately, the language is not as clear as it might be, and Arbitrator Barton in Perley Hospital and Ontario Nurses' Association (1980), 29 L.A.C. (2d) 178 held that an employee was not entitled to pay when called in on her day off to attend a joint committee meeting. Barton held that this was not time from work and only "time so spent" was to be remunerated. The result can be defended in technical legal terms, for ss.29(5) (accompaniment of an inspector) and 23(12) (inspection of a work refusal) specifically say that the time spent by a committee member in these situations is "deemed" to be work time. Section 8(12) does not use that magic word.

Nevertheless, Barton's result is dubious. Often committees will be made up of representatives from various shifts, requiring some people to attend meetings in off hours. Section 8(12) can be interpreted as reading time "so spent" to mean "spent in the duties just listed," and this would be more consistent with the objectives of encouraging worker participation.

A final point with regard to effective participation is the need for preparation by worker representatives. Burkett has suggested that representatives be given an office, preparation time and secretarial assistance so that they can come to meetings prepared (p.79). Management representatives are at an advantage now as they have these perquisites and participation in health and safety is often part of their job. While the office may be an excessive requirement in smaller workplaces, preparation time appears reasonable and could be a right under the legislation. Such a practice would be similar to that in Saskatchewan, where worker representatives are assured paid preparation time, as well as time to receive and investigate worker complaints (Sask. Reg. 55/81, s. 24(2)).

Turning from participation concerns to the committee's method of operation, two issues arise: the problems of confrontation and pragmatism. As discussed earlier, it is frequently stated that the confrontation atmosphere of collective bargaining must be avoided in health and safety committees: the watchword should be co-operation (Ham,1976,p.157; Burkett,1981,pp. 70, 87; Kochan, Dyer and Lipsky, 1977,p.83). This ideal might be a reality, if there is indeed an identity of interest between management and labour on health and safety issues, but in many cases, there is no consensus (United Electrical, Radio and Machine Workers, Submission, p. 87; OFL, Manual, Collective Bargaining, p.3; Ison, 1979, p.4). Management may wish to take shortcuts, avoiding total compliance with the regulations and raising union ire. Management and union may disagree on the way to deal with a health hazard, for example, as to whether or not to use respirators, put in local exhaust on a machine, enclose a machine, or automate a process.

One might speculate that there is greater likelihood of agreement on accident prevention because there is a question of adherence to regulations, as well as fixed standards to consult. As well, an injured employee will be immediately able to claim workers' compensation benefits, possibly affecting the employer's Workmen's Compensation premiums. Productivity may suffer from lost time, or a prosecution may follow under the Act. Seemingly, the employer has an interest in listening to his workers. Disagreement is more likely with regard to employee demands on how to comply with standards (e.g., ear muffs versus machine muffles) or on the presence of health hazards. When disease may not be determined for years (possibly long after employment with this employer has ceased), and causation will be an issue reducing the likelihood of workers' compensation, and substantial expenditures

may be needed to eliminate a hazard, the possibility of agreement is reduced.

While confrontation is inevitable in some workplaces, there may be ways to reduce its presence. Many commentators stress the importance of management co-operation and commitment to the effective operation of committees. Senior management, with decision-making ability, must be part of the committee and demonstrate a willingness to consult openly on health and safety issues (Burkett, 1981, pp. 73-75; Kochan, Dyer and Lipsky, 1977, p.90). It has been noted that co-operation depends upon the plant and management attitude (Gill, United Automobile Workers, Trancripts, Vol. 2, p.154; United Steelworkers, Submission, p.23), and cynicism is expressed about the efficacy of joint committees because of the employer's failure to consult (e.g., re: development of a program to identify the extent of asbestos exposure - London CUPE Council, Submission, p. 8).

Burkett and Kochan, Dyer and Lipsky have also suggested that those involved in everyday industrial relations should not be involved in joint committees (Burkett, 1981, p. 71; Kochan, Dyer and Lipsky, 1977, pp. 83-84). On the union side, this implies that union stewards and other union officers by excluded from committee participation, to avoid the importation of confrontation tactics and because stewards would not likely have the training and time necessary for effective participation. Even if stewards are not on the joint committee, interaction between worker representatives and the collective bargaining institutions must be expected in such proceedings as the processing of health and safety grievances; in formulating health and safety demands for negotiations; and in explaining management responses to other union members' concerns.

The problem of confrontation may also be alleviated by effective third party input - specifically, through mediative efforts by the Ministry of Labour's inspectors. Some in the labour movement have expressed discontent that the Ministry tries to mediate disputes, rather than arbitrate (CUPE Local 27 and Windsor Occupational Safety and Health Council, Submission, p. 29; Ontario Federation of Labour, Submission, p. 116). This concern would be appropriate if we were talking of clearcut violations of the legislation by an employer, for the inspector's role is to obtain compliance with the Act. Where the dispute is with regard to some of the other kinds of issues mentioned above, such as method of compliance or time for compliance, the inspectors act wisely in attempting to mediate. The Act was not designed to transfer decision-making authority over health and safety from management to labour or even from management to joint health and safety committee. It only contemplates worker consultation and input, while management retains overall responsibility for compliance with the Act. The inspector can facilitate that consultation through mediation and providing information, assisting in the setting of priorities or suggesting methods of evaluating hazards.

The mediative function is not one for which inspectors have traditionally been trained, and changes in training to include human relations and mediation skills would be advantageous (Burkett, 1981, p.121). The Occupational Health and Safety Division now includes on its staff a skilled mediator to deal with problem situations, but all inspectors will need human relations skills. They now have an educative function to facilitate the operation of the internal responsibility system, as well as a more technical policing function.

The second operational problem identified by Ham and Burkett is pragmatism (Ham, 1976, p.159; Burkett, 1981, pp. 61-62). They suggest that concentration on individual complaints should not replace a longer range vision and problem-solving approach to deal with such factors as identification of recurring problems or development of educational programs. Undoubtedly, worker input into such issues is important, but worker representatives will often lack time and sometimes training to take the initiative in these areas. It is to be expected that the worker representatives will then tend to be pragmatic in their approach, focusing on problems noted on their inspection tours or on complaints voiced by fellow workers. While these problems should be first raised with line supervisors or the plant manager, it may be important to bring them to the committee as well. Indeed, such an auditing function should not be regarded as at all inconsistent with the functions of the joint health and safety committee. The record of Saskatchewan joint committees documented in Manga, Broyles and Reschenthaler (1981, pp.220-223) indicates a preoccupation with problem-solving, but there is no indication that such an attitude is problematic. Indeed, such an auditing function is acceptable under the legislation.

This leads to a further area of debate with regard to joint committees: the adequacy of their powers. Some commentators denounce their advisory nature, which makes them an empty exercise at best, and a tool for management co-option of workers at worst (Glasbeek and Rowland, 1979, p.517; Ison, 1978, p.6). Such criticism is founded on a very different philosophy than that underlying the

legislation. The Act sets minimum standards for worker participation in occupational health issues, but otherwise leaves management prerogatives intact. To the extent that management disagrees with the workers' wishes, collective bargaining must be used to change the balance of power, or the legislation must be changed to shift decision-making powers to the joint committee.

That is not to say that changes in the legislation are unnecessary. The inspection and remuneration provisions could be made more explicit. Similarly, there could be clarification as to the workers' right to monitor air quality and to obtain air quality assessments. Admittedly, the result of air monitoring will be provided under the proposed asbestos regulation. As well, there needs to be further elaboration of the scope of the information to be provided to workers and committees, particularly the degree of detail of disclosure of hazards and the use of generic names. This need not necessarily be provided in legislation, but could be the subject of Codes of Practice, as in Manitoba.

It has been suggested that workers lack input into the most important health and safety questions because they have no input into plant design (Ison,1979,p.2). For new plants, without employees, such consultation is impossible. It would be feasible, however, to require consultation about new structures or processes in an existing workplace, and employers could be required to do so. This is a requirement under Swedish law (Witt and Early, 1980,p.22). In Manitoba the employer is required to consult a joint committee regarding new equipment, processes or chemicals (Safety and Health Committee Code of Practice, s.28).

In concluding this section on the effectiveness of the joint committee provisions of OHSA, there are a few general observations to make. First, it appears that joint committees will work better in organized than in non-unionized workplaces. Even if OFL training is available to non-union workers, they are lacking in a general support system to assist them in establishing a committee and providing resources to deal with problems as they arise. This is particularly true with regard to recognition of health hazards and responses to them. The employees may often be in marginal companies, where pressure on health and safety issues may be perceived as a threat to employment security.

Secondly, the committee's input may be more problematic with regard to health issues than with safety issues. Information problems are severe, for it may be difficult for workers to acquire information on chemicals or other toxic substances in their work environment, particularly if a trade name is used. Certainly, the Ministry of Labour study on voluntary committees found that "health issues are conspicuous by their near absence, particularly in those establishments in industries with recognized health problems" (1977-78, p.15).

Even if there are obstacles to information, the joint committee is, however, an improvement on the situation with no joint committees. An individual worker would be even less able than the committee to handle complex scientific issues. As well, the joint committee is often a better method of regulating health hazards than collective bargaining. There is an ongoing function to monitor the hazard and to suggest better control and hygiene methods,

which is unsuited to the periodic negotiation of collective agreements, often in a crisis atmosphere. As well, the obligation on employers to disclose information about hazards increases the information available, allowing for development of greater expertise in hazard regulation, while unions, the Federation of Labour and the Canadian Centre for Occupational Health and Safety provide data banks and assistance on hazard identification.

Where management is co-operative with the joint committee, the joint committee can have a valuable input into control of health hazards. This may take the form of designing education programs, discussing new safety rules and communicating them to workers, or working with management on the phasing out of a hazard.

Finally, there will be some workplaces where the joint committee works efficiently, where management and labour representatives on that committee work co-operatively, but where occupational health and safety issues remain a source of confrontation in the bargaining unit. It is inevitable that information gaps will develop in some workplaces between worker representatives and their constituents: the worker representatives may accept management's assurances that a machine will be re-designed, and that the change will take six months. Other workers may be unwilling to accept that information.

Notes

1. Sections 22 and 41 (2) para.14 allow the Lieutenant Governor in Council to pass regulations to govern the use of toxic substances. Section 20 allows a Director to make orders restricting the use of other dangerous substances not subject to such a regulation.

IX. REFUSAL OF UNSAFE WORK

The Legislation

A second major reform in the 1978 Ontario legislation is the right to refuse unsafe work found in s.23 of the Act. With the exception of certain public service occupations, such as police and firefighters, an individual worker may refuse to work if he has reason to believe that any equipment or machine he is to use is likely to endanger himself or another worker; or that the physical condition of the workplace is likely to endanger himself; or that the equipment or machine he is to use or the physical conditions of the workplace is in contravention of the Act or regulations and likely to endanger himself or another worker.

The worker is required to report the condition to his supervisor, who must make an investigation in the presence of the worker and his representative (normally a worker representative on the joint committee or the health and safety representative). If the worker is not satisfied with the employer's explanation or remedial action, he may refuse again to work if he has "reasonable grounds" to believe that the dangers outlined above continue. At this point, a government inspector must be notified and, in the presence of the worker and his representative, he will determine whether the equipment, machine or device is likely to cause danger.

In the interim, the worker is protected against management retaliation for his refusal. Pending the inspector's decision,

the worker is to remain at a safe place near his work station during working hours, subject to the employer's right to assign reasonable alternative work. The employer might send him home, but in doing so, must take cognizance of s.24 of the Act, which prohibits an employer from penalizing a worker who exercises his rights under the Act. It has not yet been determined by an adjudicative body whether sending the worker home without pay constitutes a penalty. Certainly, arbitrators under collective agreements have held that refusal of dangerous work does not entitle a worker to be paid (Domtar Chemicals Ltd. and International Chemical Workers Union, Local 682 (1975), 8 L.A.C. (2d) 346 (Weatherill) at 349). However, application of that jurisprudence to the interpretation of ss.23 and 24 of the Act would seem contrary to the purpose of protecting reasonable refusals. It would seem more consistent with the Act to require payment at least until an inspector has ruled, if the employee acts reasonably and in good faith.

Section 24 provides workers with a remedy against an employer penalty in the form of either arbitration under a collective agreement or a complaint to the Ontario Labour Relations Board. This is a significant reform for unorganized workers, who are no longer left to the civil courts and damage awards if they are unjustly disciplined for refusing work.

If the complaint is to the Board, the onus is on the employer to show that he did not impose a penalty contrary to the Act. This is a change from arbitral jurisprudence, where the employee had the onus to show that he refused an order because of a reasonable fear

for his health or safety.

The Board is provided with extensive remedial authority, identical to that available in unfair labour practice complaints under The Ontario Labour Relations Act (R.S.O. 1980,c.228,s.89 (4)), including reinstatement, backpay, and cease and desist orders. Even if the Board finds that a worker has been disciplined for cause, it may exercise the remedial authority generally available to arbitrators under s.44(9) of The Ontario Labour Relations Act, substituting a penalty which seems "just and reasonable" in the circumstances.

In practice, the Labour Relations Board has developed a policy of deference to procedures under a collective agreement when workers are unionized. In Canadian Union of Industrial Employees v. Reed Ltd., Furniture Division(1978), 78 CLLC para.16,130, the Board stated that it will not deal with a complaint once the worker has authorized his union to proceed to arbitration. Prior to election, the Board will not consider the complaint, unless the worker has made reasonable efforts to obtain a settlement through the grievance procedure. As the complaint may well have collective bargaining significance for the employer and union, the Board believes that those parties ought to be given an opportunity to deal with the matter first. The Board will not defer to the arbitration process, however, as the complaint is the individual's, while the arbitration process is usually controlled by union and management. This decision is advantageous to all parties, as it is cheaper and usually speedier to seek relief before the Board, rather than an arbitrator.

Historical Background

The legislation builds on the right to refuse unsafe work developed by arbitrators under collective agreements and earlier legislative provisions. Under previous legislation such as The Industrial Safety Act, S.O.1971, c.43, there was a form of refusal provision. Section 31(1) of The Industrial Safety Act forbade a person to use a machine, device or thing that was unsafe, while s.27 (1) imposed a general duty on the worker to comply with the Act.

As well, the common law recognized an employee's right to refuse an order to do an illegal act and recognized a right to refuse unsafe work, if objective evidence showed the work to be unsafe (Christie, 1980, pp. 277-278).

The problem with the earlier legislation was the lack of protection provided to the individual worker. Section 24(5) prohibited the employer from taking action against a worker who refused work. That was small comfort to the non-unionized worker, for the only enforcement mechanism was prosecution under the Act. The individual worker, if discharged, would be left to common law remedies of damages for wrongful dismissal. Reinstatement was not available. Therefore, the right of refusal was an empty one.

For the organized workers, protection was more readily available, as arbitrators would often reinstate or remove discipline imposed on an employee who refused an order to work because he reasonably believed the work to be unsafe. The elements to be proved were mentioned above, and they were not always easy to meet: reasonable and honest belief

and immediate communication to supervisor. The difficulty in deciding whether a belief was reasonable on objective grounds discouraged refusals. So, too, did the lack of pay if an employee refused to work (Domtar, above).

Concerns About the Legislation

The refusal section of the new legislation generated concerns among both management and labour groups. Management groups saw the section as ripe for abuse: by malcontents who might want some time off or who wanted a variation from routine; from unions who saw the use of the section, or even the threat thereof, as a way to obtain demands, often unrelated to safety. Even if the workers acted in good faith, it would be easy for them to overreact in certain situations, especially when the hazard involved is a toxic substance and the question of risk a technical question. The disruption to production which would result from wildcat strikes or individual action was contrary to the tradition of labour peace during the life of a collective agreement. As well, the ability to challenge a foreman's orders in this one respect might carry over to other aspects of the working relationship.

The opposition was grounded on more philosophical bases, as well as these pragmatic considerations. The conferral of a right to refuse unsafe work on individual workers constituted a significant encroachment on management rights to regulate workplace conditions (Ison, 1979, pp. 6-7). Arbitration jurisprudence had long recognized that management

has the right to set working conditions, unless a union has bargained for restriction on management action. The legislation automatically gave workers a legislated right to participate in management of the workplace, although the degree of encroachment would vary with the restrictions on the exercise of the right. A broadly defined and enforceable right would make negotiable issues formerly reserved to management: plant design, choice of equipment, or type of production process.

Employee groups also expressed concern about the right of refusal. Their criticisms were addressed to some of restrictions on the exercise of the right, in particular, the fact that certain groups of workers were excluded, such as police, firefighters, and employees in correctional facilities. Those employed in health care functions were excluded if their refusal would put the life, health or safety of another person in "imminent jeopardy". This implied a sense of irresponsibility on the part of such workers in accepting the normal occupational hazards of their job. There was concern, as well, about the need for"reasonable grounds", rather than a subjective belief of danger, and the concept of "normal hazards" associated with a particular job. For example, would a worker be entitled to refuse if the chemical usually used in a workplace is suddenly discovered to be carcinogenic? Following from this was a concern about punitive action available if the employee mistakenly refused work: should the employer be allowed to refuse pay or take disciplinary action? There was discontent, as well, with the fact that an employer could

assign another worker to do the suspect task, so long as that employee was informed of the prior refusal (s.23(11)).

Some unions and commentators have suggested that the only effective right to refuse will be one which is controlled by the health and safety committees or the union, as well as individual workers, for individuals, particularly in unorganized work settings, will be reluctant to invoke the provision (Ontario Federation of Labour, Submission, p.115). The legislation does not reflect this argument.

Application of The Legislation

The limited statistics available on the refusal of unsafe work do not support employer fears about widespread abuse by either individuals or unions. Statistics available from the Research Branch of the Ministry of Labour give some indication of the number of refusals under the present Act and previous Employees' Health and Safety Act (Annual Reports on Refusal to Perform Unsafe Work, 1977,1978,1979; data for 1980). The major source of information is "Potential Contentious Issue Forms" filed by government inspectors when called in to deal with a refusal. A few other cases are included in the Ministry statistics, gleaned from inspectors' reports and Ontario Labour Relations Board case files.

The numbers cumulated by the Ministry fall far below the actual number of refusals under the legislation, for they do not reflect the cases settled by the parties without government intervention. There is no way to estimate that number without requiring record-

keeping by the parties.

The experience under the legislation is set out in Table 9.1. It shows that over the years from December 1976 to December 1980, the number of refusals were at first relatively constant, followed by a significant jump to 167 cases in 1980. This may be because of increasing familiarity with the legislation.

Relying only on an analysis of Potential Contentious Issue Forms, the Ministry has shown that the legislation appears to be utilized in unionized settings at a much greater rate than in non-unionized. The figure in the table may be too low for unionized settings, for there were several cases each year in which the presence or absence of a union was not recorded. The use in unionized settings is not surprising in light of the need for a support structure to help assess whether there are reasonable grounds to believe that a dangerous situation exists.

Employer fears of widespread misuse and unauthorized collective action do not appear to be borne out. Only one worker was involved in approximately two-thirds of the cases each year. Multiple work stoppages do, however, appear to be a problem for some workplaces. Several of these experiencing multiple work stoppages experienced four or more refusals (1977-3;1978-4; 1979-3).

Whether the refusals were justified is difficult to evaluate. At a minimum, the Ministry suggests that if a contravention related to the complaint is found and directives are issued or if mediation is attempted, but without issuance of directives, it can be assumed

TABLE 9.1 - REFUSAL OF UNSAFE WORK UNDER LEGISLATION

Year	Number of Refusals*	P.C.I.'s*	Refusals in Unionized Workplaces	Number of Refusals Involving One Worker	Number of Multiple Work Refusals	Number Justified
1977	97	95	89	56	9	61
1978	91	87	81	58	12	56
1979	80	74	69	49	12	47
1980	167	167	152	112	not available	80

* The number of cases in the subsequent columns may be different from the totals shown in Column 1, which shows the number of cases brought to government inspectors' attention. The following columns are based on information in Potential Contentious Issue Forms filed by the inspectors and compiled by the Ministry of Labour Research Branch (shown in Column 2).

that reasonable cause for the refusal exists. Nevertheless, there may be additional situations where reasonable cause exists, despite the inspector's inaction: the inspector may be wrong (Pharand and Inco Metals, (1980) 3 Can. L.R.B.R.194(O.L.R.B.),discussed below) or remedial action may have been taken before the inspector's arrival. In every year, over half of the refusals were justified, in the Ministry's terms (70.1% in 1977; 56.8% in 1978; 63.6% in 1979; 55% in 1980).

A further indication that the legislation is not being abused is found in the files of the Ontario Labour Relations Board recording the disposition of complaints under s.24 of The Occupational Health and Safety Act. According to the Research Branch, the Board has dealt with a total of forty-one cases: five in 1977, nine in 1978, thirteen in 1979, and fourteen in 1980. However, the Board's first annual report in 1980-81 listed forty cases for that period alone, in contrast to ten in 1979-80 (p.42). The difference in numbers is in part a function of a different recording period (calender year versus fiscal year). It has granted five complaints and dismissed six, while thirty have been settled or withdrawn (Research Branch).

There has been one reported arbitration case under the legislation, Re Eastern Steelcasting (1981), 28 L.A.C. (2d) 310 (Adell) which upheld a refusal.

There is an interesting change in the substantive grounds for refusal under the legislation, in contrast to those under the collective agreements discussed earlier. An effort was made to determine whether the refusal was caused by fear of exposure to a toxic substance or

physical agent by studying the Potential Contentious Issue Forms and the inspectors' reports in the Industrial Safety Branch. Up to June, 1981, fifty-four cases were identified which were triggered by toxic substances. By far the most common substance was asbestos, which figured in twelve refusals (Table 9.2). All of the asbestos cases occurred between June, 1979 and May, 1981, which may be linked to awareness of the hazard generated by the schools issue and the appointment of the Royal Commission on Asbestos in April, 1980. All twelve cases involved unionized workplaces. Three cases appear to have involved the whole workforce or a whole shift; one involved ten workers; two, five workers; and the rest one or two. It appears that in three of these cases, the presence of asbestos was unusual -- in two cases, removal of insulation; and in one, cutting asbestos pipe.

The discussion to this point has focussed on the words of the legislation and its application by workers, without examining the legal problems that lurk in the language: the meaning of "reasonable cause to believe," the imminence of the hazard, the novelty of the hazard to the particular workplace. There have been few opportunities for development of an Ontario jurisprudence, although the case of Pharand and Inco Metals gives a great deal of guidance. That case was decided under The Employees' Health and Safety Act, which contained slightly different language than s.23 of OHSA. Whereas an employee may now have "reason" to believe there is a danger when he first refuses, he must have "reasonable grounds" for that belief when the inspector is called in (s.23(3), (6)). The language of the previous Act, in both of these situations, was "reasonable cause." The Ministry's interpretation

Table 9.2: Refusals Because of Asbestos

	Company	No. of Employees	Date	Process	Result
(1)	O.K. Orenstein and Kopple Canada Ltd.	1	June 28, 1979	Use of asbestos near station	Directions
(2)	Tracon Engineering	1	July 12, 1979	Asbestos insulating material production	use of respirators, air testing
(3)	Certified Brakes	100	November 19, 1979	Friction brakes	Directions
(4)	Bendix Automotive	2	January 28, 1980	Friction brakes	no directions
(5)	Certified Brakes	some on early shift; 29 on later shifts	March 11, 1980	Friction brakes	no directions
(6)	Shaw-Almex Industries	2	April 23, 1980	Cutting and sanding asbestos sheets	justified
(7)	Ontario Hydro-Douglas Point Generating Station	5	June 17, 1980	Cutting asbestos pipe	justified
(8)	Robert McAlpine Ltd.	1	July 7, 1980	Cutting asbestos pipe (one-time job)	justified
(9)	Algoma Steel Corp.- Primary Division	5	July 11, 1980	Packing moulds with asbestos rope	no directions (respirators provided)
(10)	Libbey-St. Clair Inc.	10	December 16, 1980	Machining asbestos for packing gears	no directions
(11)	Union Carbide Canada Ltd.	Printing Specialties	January 25, 1981	Removal of insulation	no directions
(12)	St. Joseph Hospital, Peterborough	2	May 13, 1981	Replacement of boiler	justified

manual sees this change as significant, incorporating a two-step process. It may well be that step one creates a subjective test, while step two is more objective. That has not been determined. However, when it comes to stage two, it seems that an objective test applies under both pieces of legislation. Such a test was stated in Pharand, and it has been approved under the present legislation in Labourers International Union of North America, Local 183 v. Burlington Carpet Mills of Canada Ltd (1981), 81 CLLC para.16,069. The significance of the test will be discussed below, after a brief review of the facts of Pharand.

The case involved twelve complainants, who constituted the entire casting crew at a copper refinery. They refused to work, fearing that a hole in the roof of an anode furnace would cause the roof to cave in during the casting operation. This would cause a danger from molten metal to the crew. Inspectors from the Ministry of Labour, who had been called to the site when two workers on an earlier shift refused to work, relied on the opinion of the managerial staff that the furnace was safe. They did, however, order two men be kept at the tap hole of the furnace as a precaution. The order was repeated when one of the inspectors was recalled on the second refusal. The employees still refused to work, so they were sent home without pay for the balance of the shift. Disciplinary notations were later entered on their records. The employees complained to the Labour Relations Board that they were being disciplined for having exercised their rights under the Act, contrary to s.24.

Vice-Chairman Picher, in finding that the complaints were justified, made it clear that the legislation had not departed in any significant way from the arbitral jurisprudence on work refusal. The objective test to determine whether the worker's refusal is justified is preserved. As Picher phrased it, the concern is "whether the average employee at the workplace, having regard to his training and experience, would exercising normal and honest judgement, have reason to believe that the circumstances presented an unacceptable degree of hazard to himself or to another employee" (p.208). It is the average employee who sets the standard, not the individual who may be particularly susceptible to the hazard which confronts him or who may be anxious about substances used on his job because of a news report about their dangerous properties.

The objective approach has the advantage, from a management perspective, of discouraging worker refusals. The employee who fears the hazards of his job must ask himself, before refusing to work, whether the "average" employee with his general training or experience would believe conditions are unsafe. That is a far from simple determination, and one can speculate that an individual worker confronted therewith will be reluctant to exercise the right of refusal out of fear of punitive action by his employer. This is especially true if other workers, told of the refusal, agree to do the job.

Even though the test in Pharand is phrased in objective terms, it is not without ambiguity and it is to be hoped that the Board will take into account individual characteristics when applying the legislation. At least in some circumstances, individual traits are

important to a consideration of the reasonableness of the refusal. For example, a worker who has never known of the presence of asbestos in the workplace may suddenly discover its presence, perhaps in the form of deteriorating insulation. He may refuse to work because he notices flaking from the insulation. Even if no other employee is concerned, would he not have reasonable grounds for refusal because he believed what he read in the press about the dangers of asbestos? Should other employees' perception that the danger is blown out of proportion require him to work in this case? The concern should be the sincerity of the worker's refusal with some objective basis also considered: is he motivated by an honest fear for health and safety? If so, are there good reasons for such fears? How commonplace is the hazard in his work? Adjudicators under the Act should bear in mind, as they decide the reasonableness of the action, that the Act was designed to protect workers, improving their access to information (through discussion of hazards with management), and giving them a limited way of controlling their working conditions. Without turning the refusal right into a bargaining lever for use in mid-contract, the Board and arbitrators can show some awareness of the obstacles to use of the right to refuse which legal technicalities and an "average man" test import. Such sympathy for good faith refusals was expressed by another vice-chairman of the Board,McDowell, in Martin v. General Motors of Canada Ltd. (1980) O.L.R.B. Rep. 700.

Pharand addressed itself indirectly to a second important issue under the refusal section: the legitimacy of collective action. The

employer in this case, as well as in the Eastern Steelcasting arbitration decided under the Act, agreed that group action was inconsistent with the Act, as s.23 guarantees only an individual the right to refuse work. The employer argued that collective action would constitute an unlawful strike under The Ontario Labour Relations Act. That Act defines a strike as a refusal to work "in combination or in concert or in accordance with a common understanding" (s.1(l)(o)). Such activity is prohibited during the life of a collective agreement (s.72). Both Picher and arbitrator Adell rejected the submission that group refusals would automatically constitute a strike. Picher stated that an employee who did not believe he was in danger, but who followed other employees out, because they reasonably believed conditions to be unsafe, would be protected under the legislation. The doubter could shield himself from penalty under their reasonable belief (p.212). Adell stated that employees could rely on s.23 even if they had discussed the hazard in a group and decided to walk out in concert (p.321). These cases make sense: there was no doubt that the workers involved were afraid or had reason to be afraid for their own safety.

Neither case dealt with the role of the union in counselling workers to refuse work. No doubt a union actively engaged in counselling employees about hazards and their concomitant right to refuse unsafe work would find itself vulnerable to a charge of counselling an unlawful strike. Yet such an informational role for the union is important to educate the worker as to his rights. The legislation is clear that the individual employee must come to a decision that he believes his workplace is unsafe, which is apparently a purposeful effort to keep unions

from the decision-making role in refusals. This is no doubt because of a fear of abuse. While the union can probably counsel individuals, it cannot call all the workers out because of health and safety issues, unless each is able to show he has reasonable cause to believe working conditions are dangerous.

In contrast to Ontario, The British Columbia Labour Code, R.S.B.C. 1979, c.212, s.83(3), contemplates collective action on health and safety issues. That section expressly exempts from the category of unlawful strikes "an act or omission by a trade union or by the employees... where it is required for the safety or health of those employees." Admittedly, it does not speak of an individual's right of refusal. That is found in the Workers' Compensation Regulations, B.C.Reg.585/77, as am.B.C.Reg. 374/79, s.8.24.

The Ontario refusal right is restricted not only by the objective test and by the limited union involvement. There is also a concept of "imminence" of the hazard which confines its use. The legislation is drafted in such a manner as to restrict refusals to those immediately near the source of the hazard: either the person operating the machine or equipment or the potential victim immediately exposed thereto. Picher indicates this in Pharand when he says that refusing workers must be in "a sufficiently close relationship to the perceived hazard....that they will put another employee in peril by performing their work" (p.208). It seems that the right of refusal cannot be used by a group of employees in one part of the plant to support the justified safety concerns of employees in another part. This was certainly the conclusion of the

British Columbia Labour Relations Board in interpreting the refusal provision in s.251(g) of The Mining Act in Cassiar Asbestos Corp. v. United Steelworkers of America, Local 6536, (1976) 2 Can. L.R.B.R.476. Office workers who walked out in sympathy with miners exposed to asbestos dust were justifiably disciplined (p.480).

A related "imminence" question involves time lag between injury and exposure to hazards. It is easy to recognize an immediate hazard when a machine guard is not used, for further operation of the equipment may lead to a serious accident. The probability issues are much more difficult to determine with toxic substances subject to governmentally set or enforced exposure limits. What if the employee refuses to work because he believes the exposure limit for asbestos or a chemical has been exceeded? With the lengthy latency period between asbestos exposure and disease, it is arguable that a brief exposure of a day or two until an inspector arrives is not an imminent danger or one likely to endanger health. The danger to the worker varies with the length of exposure and the concentration of the substance.

It should be emphasized, in responding, that the Ontario legislation contains no express criterion of imminence, as in similar federal legislation. Under the Canada Labour Code (R.S.C. 1970, c.L-1, as amended, S.C. 1977-78, c.27, s.82.1), it has been held that the threat must be "likely to happen at any moment without warning" (Miller and Canadian National Railways, (1980) 2 Can. L.R.B.R. 344 (C.L.R.B.) p.353). The language is that of trauma, or accident, not industrial disease.

Even though s.23 of OHSA contains no such restriction, it is

inevitable that adjudicators will import it. The right of refusal is to be limited to situations in which normal channels of enforcement, such as a report to a supervisor or the calling in of an inspector, will be inadequate to avoid serious injury. With toxic substances, the danger normally lies in length of exposure. Often, an inspector brought in to deal with a refusal related to asbestos or other toxic substances cannot resolve the problem forthwith. He may have to call in an industrial hygienist to do air quality tests and the results may be weeks in coming. Work cannot be stopped in the interim, as both employer and workers would suffer.

The right to refuse should, nevertheless, be available to protect against health hazards in some situations. If the hazard is likely to cause danger with one exposure (e.g.,overexposure to radiation by a pregnant woman), a refusal is justified. In addition, where there is doubt about the degree of exposure which causes harm and the worker is not normally exposed to a particular substance, a work refusal would appear to be justified.

The most difficult case is the workplace in which a toxic substance is regularly used and the danger derives from cumulative exposure. In such case, an isolated failure to meet the standards would probably not justify a refusal, for probability of injury must be weighed against the availability of other enforcement mechanisms. If the failure to meet the standards occured repeatedly, then the refusal appears to be more justifiable in order to limit dangerous exposure and to pressure employer compliance with the legislation.

A final point of interest in Pharand is the clarification of the role of government inspectors. Picher accepted the validity of worker refusals despite the government inspector's decision that work conditions were safe. This was understandable on the facts of the case, because the inspector relied on management's opinion about conditions, rather than assuming his proper role of neutral third party. Even in less suspect cases, it is clear that an employee may rightfully argue that he was justified in refusing work, both after his employer examines the worksite and after an inspector rules that conditions are safe. The employee will, however, be faced with an escalating onus to show the reasonableness of his belief after an inspector finds against him (pp. 210-211).

In evaluating the right of refusal under the legislation, a conclusion similar to that voiced about joint health and safety committees is reached: the legislation works best for the worker covered by a collective agreement. The support system and information provided to the worker are very important, for an assessment of the availability of refusal in many circumstances is a complex and risky task.

The efficacy of the right of refusal in protecting against toxic substances, and in particular, asbestos, is still open to debate. There are information problems in conveying the hazards of such substances to the workers and problems in assessing exposure, particularly without air monitoring equipment available. As well, there remains the problem of the necessary degree of imminence in time between exposure and injury.

X. OCCUPATIONAL HEALTH AND SAFETY REGULATION: A COMPARATIVE LEGISLATIVE VIEW

The regulation of occupational health and safety in several other jurisdictions is similar in form to that in Ontario. Health and safety legislation in all Canadian provinces except Prince Edward Island and Nova Scotia contains some type of provision for joint health and safety committees, as does the federal legislation. Committees are mandatory in certain circumstances in British Columbia, Saskatchewan, Quebec, Newfoundland, and New Brunswick.

Canadian Models

Saskatchewan's Occupational Health and Safety Act, R.S.S. 1978, c. O-1, and more recently Quebec's Occupational Health and Safety Act, S.Q. 1979, c. 63, are regarded by unions, legislative draftsmen, and academic writers as model legislation in Canada. Saskatchewan adopted the internal responsibility system concept in 1972 (S.S. 1972, c. 86) and has provided a model for other jurisdictions in their reforms. Committees are mandatory at worksites with ten or more employees (s. 24). The committee's powers are in many ways similar to those in Ontario: participation in identification and control of health and safety hazards, establishment of safety programs, receipt of worker complaints, and inspection of the workplace (at intervals determined by the committee). In contrast to Ontario, the committee plays a role when an individual worker refuses unsafe work. The committee investigates the refusal (s.26(1)) and if the members reach a unanimous decision as to whether the refusal is justified, the matter is settled. Otherwise, an inspector can be called in to resolve the issue (OHSA, s.26(1); Sask. Reg. 55/81, s.22(2)).

The government takes a more active role in facilitating the operations of the committee than in Ontario by requiring minutes to be filed with the Ministry of Labour and by conducting training programs for worker representatives. The government also delegates monitoring responsibilities to the private sector: workers are trained to monitor air quality with government-provided equipment, replacing government industrial hygienists (Witt and Early, 1980, p. 23).

The legislation encourages worker participation by requiring the employer to grant eductional leave to committee members for up to five working days per year. The employer must also pay for their attendance at government training programs (Sask. Reg. 55/81, s.27). The employer is also required to facilitate worker participation by allowing worker members to meet during working hours (s.20(4)) and to investigate worker concerns and conduct committee business during work hours (s.24(2)).

The Saskatchewan regulations are somewhat more detailed than Ontario's in relation to the communication of health and safety information. For example, the employer is required to warn an employee exposed to asbestos dust specifically of the dangers of pneumoconiosis, lung cancer, and mesothelioma, and the increased risk of injury from smoking(Sask. Reg. 55/81, s.115). The Act also specifies that the committee is entitled to copies of all of the Department's communications with the employer.

Quebec's legislation is unusual in that it gives decision-

making power to the joint health and safety committee. Such committees may be established where there are more than twenty workers in a workplace belonging to a category of workplaces defined by regulation (s.68). They have power to select the workplace physician; approve the health program prepared by the physician; establish training and information programs related to occupational health and safety; and to select individual protective devices and equipment best adapted to the needs of workers. Should disagreement arise between worker and employer representatives, the resolution of the dispute is left to the government's Commission de la santé et de la securité du travail.

* * *

It would serve little purpose to canvass the detail of the health and safety legislation in all provinces. Compilations and descriptions are found in the CCH Canadian Employment Safety and Health Guide, while descriptions of the operation of the legislation in British Columbia, Alberta, Saskatchewan, and Ontario are found in two recent studies: Reschenthaler's Occupational Health and Safety in Canada (1979) and Manga, Broyles and Reschenthaler's Occupational Health and Safety: Issues and Alternatives (1981). Generally, these studies categorize the legislative approach in these jurisdictions as the workers' compensation model (in British Columbia, where the Workers' Compensation Board also administers health and safety regulations); the government advisory role (Alberta); and the worker participation model (Saskatchewan, Ontario). The distinctions

are helpful, although they may be more of degree than of kind, for many jurisdictions now provide for committees, refusal of unsafe work and access to information.

If one looks internationally for models to regulate occupational health and safety, one finds a similar worker participation philosophy in the legislation in Sweden and the United Kingdom and a much more traditional administrative approach in the United States.

Sweden

In Sweden, each workplace with more than five workers must have at least one safety delegate appointed by the local trade union or appointed by the employees, in the absence of a union (Work Environment Act, SFS 1977: 1160, c. 6, s.21; Witt and Early, 1980, generally). The delegate has some of the functions similar to the joint committee under OHSA: to make representations about safety hazards and to inspect the workplace. However, the delegate can also order suspension of work on a job if there is an immediate and serious danger to an employee (c.6, s.7). An individual also has a right to refuse work which creates an immediate and serious danger (c.3, s.4). The safety delegate must also be consulted before the building of new premises and introduction of new devices, work processes or methods, or use of toxic substances (c.6, s.4).

In addition to safety delegates, the Act requires safety committees where there are fifty or more workers (c. 6, s.8). The committee is to deal with the occupational health service and planning of new premises, devices or work processes or use of toxic substances.

A building permit cannot be issued unless the Labour Inspectorate certifies that there has been worker consultation on health and safety (Order, s.17).

Training is provided at employer expense, financed through a National Work Environment Fund. Individual employees are paid by their employer and the training is conducted by unions.

United Kingdom

The Health and Safety At Work Act in the United Kingdom (1974, c. 37) also provides a right to worker participation in health and safety regulation. The principal actor is the safety representative, who is selected by a trade union (S.I. 1977 no.500, s.3(1)). A safety committee must be established if the safety representatives request it. Unorganized workers are guaranteed neither representation nor rights under the Act.

The functions of the safety representatives are advisory, as in Ontario: to make representations to the employer on health and safety matters, to carry out workplace inspections at least quarterly, to receive information from government inspectors, and to attend safety committee meetings. The responsibility for training safety delegates lies with the trade unions and the training usually lasts five to ten days per year. To facilitate participation, the legislation provides that the safety delegate will be provided office space and given time off work with pay to fulfill his safety functions and to take training (s.4(2)).

Where safety representatives and employers are in dispute, a

government inspector can be called in to enforce regulations by the issuance of an improvement notice or prohibition notice. Alternatively, safety representatives may choose to use the collective bargaining process.

There is no legislated right to refuse unsafe work, but job action to protest against unsafe conditions occurs despite the absence of a legislated provision (see generally Benedictus, 1980; Appleby, 1979).

United States

The regulation of occupational health and safety in the United States is markedly different from that in all the jurisdictions described above. The Occupational Safety and Health Act (Pub. L. 91-596; U.S.C. § 651-678) enacted in 1970, is the first federal initiative into broad ranging occupational safety and health regulation. The perceived inadequacies of state regulation, the concern about health hazards from exposure to toxic chemicals and physical agents, and the rising injury rate led to pressure for legislative reform. Compared to the reforms in other jurisdictions, OSHA appears quite traditional. The emphasis is on detailed regulations and administrative enforcement. The Act establishes a research body, the National Institute for Occupational Safety and Health, located in the Department of Health, Education and Welfare, to develop and recommend standards. These are promulgated by the Secretary of Labor, who is also responsible for enforcement. Enforcement is through inspectors empowered to enforce the standards by citations, followed by civil penalties if

necessary (§ § 658, 659, 666).

The worker's rights are much more limited than in Ontario. There is a right for an employee representative to accompany an inspector (§ 657 (e)), and an inspector's citations must be posted in the workplace. A worker can call in an inspector if he fears physical harm or imminent danger from a violation of a safety or health hazard and the Secretary of Labor believes that there are reasonable grounds for such belief (§ 657 (f) (1)).

There is no legislated right to worker participation in the workplace and the Act itself contains no individual right to refuse unsafe work. Rather it provides for injunction proceedings in a district court by the Secretary of Labor to prevent a danger that might cause death or serious physical harm immediately or before the danger can be eliminated through normal enforcement proceedings. The individual is given a right to refuse hazardous work through a regulation under the Act (29 C.F.R. § 1977.12) which allows an employee to refuse work if a reasonable person would believe there is a real danger of death or serious injury in continuing to work and the danger cannot be eliminated through statutory enforcement channels. The validity of this regulation was upheld by the United States Supreme Court in Whirlpool Corp. v. Marshall (1980), 445 U.S. 1. There is also a right to refuse unsafe work on a collective basis recognized in the National Labour Relations Act. Section 7 treats a strike over unsafe conditions as protected concerted activity (29 U.S.C. § 157). As well, § 502 of the Labour Management

Relations Act (Pub. L. 61-162) recognizes the right of employees, as a group, to quit work because of "abnormally dangerous conditions."

There are reporting provisions in the Act, such as mandatory recording of job injuries and illness (§ 657(c) (2)).

OSHA has been the subject of vigorous criticism by both labour and management groups. Labour is critical of enforcement efforts, because of a lack of inspectors and reluctance to impose significant penalties. In 1976, 1,500 inspectors covered five million workplaces, which was less than 1.5% of all workplaces. The average penalty for each violation was $37.44 (Boden and Wegman, 1978, pp. 44, 45). Management is critical for a different reason, focused on the plethora of regulation, which often deals with petty issues such as the height of a toilet seat. Such regulation is regarded as expensive and time-wasting.

There have been suggestions for increased worker participation in occupational health and safety regulation in order to facilitate enforcement or to provide more flexibility in standard setting. Boden and Wegman have advocated increased information and training for workers, as well as legislation to mandate worker health and safety stewards (1978, pp. 47-49). Bacow has recommended that OHSA provide incentives for increased collective bargaining over occupational health and safety, as well as union enforcement of regulations under the Act (1980, pp. 104-119).

XI. SUMMARY, CONCLUDING OBSERVATIONS AND RESEARCH NEEDS

Summary

Each of the main mechanisms -- the market, collective bargaining and legislation -- has a role to play in the identification, control, enforcement and compensation issues pertaining to occupational health hazards, such as those arising from the use of asbestos at the workplace. Their role is also interdependent since the mechanisms can be mutually reinforcing. In that vein, the key policy issue becomes one of arriving at the appropriate emphasis to place on each mechanism, and how to encourage their complementarity.

The market mechanism emphasizes how forces of competition -- to the extent that they prevail -- would compel employers to pay a compensating wage for occupational hazards. This in turn would provide employers with an incentive to reduce hazards in the least-cost fashion and it would raise the price (and hence reduce the consumption) of products that involve hazardous production. Workers would sort themselves into jobs in part on the basis of their aversion to, and ability to take precautions against, such hazards. The preferences of the younger and more mobile workers would probably dictate the degree of occupational health and safety that prevails, because they are the workers for which employers will adjust their compensating wages to reduce quits or attract recruits.

The econometric literature on compensating wages for hazardous work tends to confirm the existence of a wage premium for unsafe work. The premiums increase with the seriousness of the risk, and they are

larger for unionized than nonunionized workers. While there appears to be reasonable agreement that such compensating wages do exist, there is considerable disagreement on the extent to which they are "adequate" (especially for health, as opposed to safety, hazards) and on whether or not they can or should be relied upon to ensure an adequately safe work environment.

Concern with the viability of the market mechanism arises for numerous reasons, and they are more prominent for health hazards like asbestos than for safety concerns. Imperfect information appeared to be the most compelling market imperfection, arising because of the public-goods nature of information and because firms may have an economic incentive to hide the information and perhaps even to misinform. Markets could also fail to provide adequate compensation in the event of bankruptcies or the closing of operations in response to newly discovered hazards. They could fail to provide what some may regard as basic minimal rights (e.g., a safe work environment), and they do not ensure equity or fairness in the distribution of such hazards.

Collective bargaining emerged in part as a response to the concerns of workers over the market mechanisms as a device to determine the terms of employment. Being a collective response, the collective bargaining mechanism will reflect the preferences of the average unionized worker (in contrast to the market mechanism which would reflect the preferences of younger, mobile workers). The limited, and sometimes conflicting, evidence on worker preferences suggests that workers attach a great deal of importance to occupational health and safety, but that it is usually not a top priority and it may have to be traded off for other bargaining demands, including money. This is substantiated by the fact

that, with some notable exceptions, few strikes have occurred in Ontario over health and safety, and most that did occur were brief.

Desirable features of collective bargaining include the fact that worker priorities for health and safety are established and communicated to management, and the resulting bargains are likely to be lasting and workable since they are developed by the parties themselves. When both parties see mutual gain over some issues then they can emphasize integrative rather than adversarial bargaining. Unions can play an invaluable role is acquiring information; in communicating risks and rights to workers; in assisting the monitoring and inspection aspects of legislated standards; and in protecting the rights of workers in the area of medical surveillance and record-keeping. Their role will be especially inportant -- albeit more difficult to play -- when language barriers are a problem.

Weaknesses of the collective bargaining mechanism have been emphasized by some, especially those who feel that the adversarial nature of bargaining will relegate health and safety to being a bargaining tactic. There may also be concern that the health and safety of a minority of workers may be bargained away for wage gains for the majority, or that collective bargaining is ineffective since most of the viable policies to improve health and safety are part of management's exclusive rights and hence not subject to bargaining. The collective agreement is also fixed for a definite period (whereas health and safety issues arise daily) and it does not cover all workers.

Some light on these issues is provided by an analysis of the extent of collective bargaining coverage of Ontario workers exposed to asbestos, and of the related provisions in their collective agreements. The analysis indicated that the vast majority of such exposed workers was probably covered by a collective agreement, especially those most seriously exposed.

However, the health and safety provisions were of a fairly general nature, not really referring to problems arising from particular hazards. Similarly, an analysis of Ontario arbitration awards indicates that this mechanism was seldom used to address issues of occupational health (as opposed to safety) and that the right to refuse unsafe work has seldom been the subject of grievance arbitration.

Various legislative and regulatory mechanisms have arisen to deal with occupational health and safety when neither collective bargaining nor the market mechanism could fully handle the problem. Legislation has been either preventive or compensatory in its primary focus. Preventive legislation, while potentially broad-ranging in scope, may be expensive to implement through administrative-enforcement mechanisms and can also suffer from insufficient or ineffective government enforcement. As well, government is often criticized for the inflexibility of standards.

Compensatory legislation addressed to industrial disease suffers from many of the problems associated with tort liability and the criminal law, two other mechanisms for the regulation of occupational health and safety. Proof that the disease was caused by exposure to the toxic substance is a major obstacle to recovery (although less so with asbestos-related diseases because of directives issued by the Workmen's Compensation Board).

Tort liability is a less satisfactory regulatory mechanism because of additional problems such as the bars to common law recovery for work-related disease found in The Workmen's Compensation Act. Criminal law is also unsatisfactory because of procedural problems, such as stays of private prosecutions, and substantive problems, such

as proving the requisite intention to harm.

Recognition of the inadequacy of compensation legislation and existing regulatory statutes enforced by inspectors led to new preventive efforts. The Employees' Health and Safety Act of 1976, followed by The Occupational Health and Safety Act of 1978, emphasized the internal responsibility system as the major mechanism for enforcement of the Act. The Act contained three important features: mandatory joint health and safety committees, a right to refuse unsafe work, and a right to information.

The joint committees provide a forum for ongoing labour-management consultation on occupational health and safety issues. At a minimum, they provide an internal policing system which can continually monitor compliance with government regulation. Their role can be more expansive, however, allowing worker input into educational programs, design of work processes, and other safety and health matters.

Some committees have been criticized for their pragmatism or the confrontation which occurs during meetings. Both characteristics must be expected in some workplaces. Pragmatism may depend on factors such as worker training and information. Confrontation is not unexpected, because of divergent interests of management and labour on health and safety issues, although the degree of confrontation may be reduced by a demonstrated willingness to consult by senior management. The risk of confrontation may also be reduced if labour relations personnel are removed from the joint committee.

Overall, education addressed to the detail of the legislation and health and safety issues is vital to the successful functioning

of joint committees. Ministry inspectors can be helpful in facilitating committee operations, which may require training in human relation skills.

Finally, it appears that joint committees work less successfully in non-unionized workplaces, because of the lack of a union support system. They may also face more difficulties in dealing with health than with safety issues because of information problems. To this end, the right to know provisions of the Act need clarification, possibly through Codes of Practice.

The right to refuse unsafe work in s.23 is a second feature of the legislation. Despite initial employer fears about possible abuse, there appears to be no evidence of widespread misuse. The Act's focus on reasonable belief has been interpreted as the belief of the average employee. It is suggested that individual characteristics should also be considered in deciding the reasonableness of belief, so long as the worker acts in good faith. Other criteria, such as the imminence of the danger, suggest that legislation may be less suitable in addressing health hazards than safety hazards, although this has not yet been conclusively determined. Dangers to health often occur as a result of lengthy and continuous exposure to the toxic substance, and one isolated incident of excessive exposure is rarely sufficient to cause damage. This seems to remove the necessary criterion of imminence.

Again, the right seems to be more accessible to members of a unionized workplace because of the support system provided.

Comparative models of occupational health and safety regulation also emphasize worker participation through a health and safety

representative or joint health and safety committees. This is true throughout Canada, as well as in Sweden and the United Kingdom. The United States, however, lags behind. Despite important informational rights for workers, there is no participation right nor any obligation on employers to consult workers on health and safety issues.

Concluding Observations

Numerous contentious issues were raised throughout this study and many involve choices that are subject to policy change. Other changes will probably evolve themselves as labour and management (perhaps assisted by legislation) become more aware and more informed of occupational health hazards. The key policy issue becomes one of utilizing and building on the strengths of each of the existing mechanisms -- the market, collective bargaining and legislation -- and trying to rectify the weaknesses of each.

All mechanisms would be assisted by more and better information, of an objective nature, provided in a clear and readily available fashion, and in a way that overcomes language barriers. This is even more crucial for health hazards than it has been for safety hazards. Clearly there is a role for public policy in this area, involving such factors as labelling, medical surveillance and records, detailed information on the expected impact, and penalties for misinforming. This role should be sensitive to union and worker concerns over such factors as medical surveillance and record keeping, and it should try to utilize unions as much as possible in the information gathering process, including air quality monitoring. Public policy may also have to address the issue of the appropriate policy response (e.g.,

liability and compensation policies for plants that close or go bankrupt as a response to newly discussed health hazards.

In general, it appears that neither unions nor management feel that all issues of occupational health and safety could or should be left up to the collective bargaining process: management wants to minimize the encroachment of the adversary principle on what it regards as management's rights, and unions feel that at least minimum protection should be provided to all workers without having to give anything up in bargaining. Uniform legislated standards apply to both the union and nonunion sectors, and hence nonunion companies are not able to compete with unionized companies by saving on health and safety costs.

Although it has not been possible to document rigorously, it appears that health and safety issues are being considered more in the collective bargaining relationship and that this emerging trend will continue in the future. This trend has probably been assisted by the emerging legislative response; however, both may also be part of the same forces giving rise to an increased awareness and desire to do something about occupational health problems. This trend has numerous desirable features, not the least of which is the fact that the parties directly responsible for occupational health and safety are likely to arrive at a solution that considers the costs and benefits to both sides. The challenge will be to minimize the potential weakness of collective bargaining in this important area.

The appropriate role of public policy in assisting the collective bargaining mechanism is one that probably would not receive a

consensus from both union and management. Unions would support general policies to encourage the spread of collective bargaining (for this and other obvious reasons) and they would support the right to renegotiate a collective agreement (preferably with the right to strike at this time) should there be hazardous changes in the work environment that could not be foreseen at the time of the original contract negotiation.

Unions would also support an expanded right to stop work, which would allow them to call workers out in the face of an imminent danger. The United Steelworkers have, through collective bargaining with Denison Mines, obtained provisions allowing union inspectors to shut down unsafe equipment or work areas (Kingston Whig Standard, August 5, 1981, p.3). A legislated right would be preferable to unions.

Management is likely to resist such a legislative initiative, although there may be less opposition to a less dramatic reform, suggested by some unions, which would recognize a joint health and safety committee's right to order work shutdown or an area closed because of danger. Management would be protected from unilateral union action, since it would normally be in a parity position with the union representatives. Deadlock is foreseeable in some committees, which would require a dispute resolution mechanism, such as the calling in of an inspector.

A further area of government initiative might be in providing special expedited arbitration mechanisms to deal with health and safety grievances. "Work now, grieve later" is perceived as unjust when a person's health or safety is in question, even if not in imminent jeopardy. Access to expedited arbitration is now available through s.45

of The Ontario Labour Relations Act, R.S.O. 1980, c.228. Under s.45(2), the request for arbitration can be made only after exhaustion of the grievance procedure or thirty days after the grievance is brought to the attention of the other party except in discharge cases. Then the period is reduced to fourteen days (s.45(3)). Consideration might be given to providing access after fourteen days in health or safety grievances involving discipline or disputes over working conditions involving health and safety.

Research Needs

Numerous research needs have been alluded to throughout this study. Clearly many of the issues are ones whose resolution will depend on bargaining power and political action that may be independent of so called "objective"facts. Nevertheless, our knowledge of the appropriate policy response could be assisted by additional information in a variety of areas.

Knowledge of the efficacy of the market mechanism would be assisted by more Canadian evidence on the existence of compensating wages, for health as well as safety hazards. Having quantitative information on the determinants of industrial accidents, explaining the relative importance of the work environment, the general economic environment, and worker action, would also be useful especially in designing accident prevention policies.

Knowledge of specific collective agreement provisions pertaining to health and safety matters would enable a better understanding of how the collective bargaining process works (or does not work) and how this

has changed over time, especially in response to legislative changes. Currently, only general provisions are coded on a systematic basis. Similarly, a systematic analysis of cases of the right to refuse unsafe work, especially with respect to toxic substances, would provide a better understanding of the uses and possible abuses of this important mechanism.

An analysis of existing and past joint committees -- their successes and failures on health issues -- would also be useful. This would probably have to be done by surveying a representative sample, which should differentiate between unionized and nonunionized firms, the identity of the particular union, and the experience in different sectors (e.g., manufacturing vs. mining, industries with multiple chemicals or toxic substances vs. those concerned about safety).

Quantitative information on internal union tradeoffs as evidenced by the variation in collective bargaining outcomes with respect to such factors as wages, fringe benefits and working conditions (including health and safety) would indicate how these factors are traded off in the bargaining process and how union gains are distributed to the membership. Similarly, research is needed in Canada on the impact of unions on various work rules and communications mechanisms, including how these factors affect such outcomes as health and safety.

Clearly research on any or all of these issues would help shed light on the appropriate policy response in this important area. What is equally true, however, is that policy responses have to be made on the basis of the best information that is available, no matter how limited that information. Policy responses cannot always wait until all the information is in: to do so is an implicit decision not to respond.

REVIEW OF ECONOMETRIC STUDIES OF COMPENSATING WAGES FOR HAZARDOUS WORK

The purpose of this appendix is to review the econometric literature on compensating wages for hazardous work. While the literature itself is somewhat technical, an attempt is made to summarize the results in as non-technical a fashion as possible. Before reviewing the literature, the theoretical foundations and econometric procedures and problems are first discussed.

Theoretical Foundations

The theoretical and empirical foundations for the literature on compensating wages rests on what is termed the "hedonic price technique" (Rosen 1974). Basically, this technique involves relating the variation in the price of a commodity to the variation in certain attributes, such as quality characteristics, of the commodity. Econometrically this is usually done by regressing the price of a commodity on various independent variables reflecting quality dimensions of the product. The resultant regression coefficients indicate the change in price that is associated with a unit change in the quality dimension of the product. It is an estimate of the "shadow" or implicit price that consumers are willing to pay in the market place for each characteristic.

This same approach has been used to evaluate the shadow price (compensating wage) of various fringe benefits job characteristics including hazards. This price is determined by the interaction of workers and firms in the labour market. Workers are assumed to be willing to accept additional risk in return for additional wages, albeit subject to diminishing returns so that

the required compensating wage premium increases with the level of risk for each worker. Different individuals, however, may have different attitudes toward risk so that a series of wage-risk tradeoffs (indifference curves) may prevail. The minimum of these tradeoffs (i.e., the envelope) describes the minimum compensating wage that must be paid to induce workers to accept each given level of risk: it is the minimum acceptance wage that workers have for risk.

Similarly, firms are assumed to be able to trade off safety costs against other costs, including compensating wages. They will invest in safety only if it is profitable to do so, for example, by saving on compensating wages. A given firm is assumed to have diminishing returns with respect to utilizing a risky work environment in its production process. Hence, it can maintain its normal profit level by utilizing a more risky work environment only if it can pay a smaller compensating wage premium for additional risk. Different firms, however, have different production technologies with respect to their ability to use a risky work environment in their production process: there are indivisibilities in the use of risk. Hence there is a series of wage-risk tradeoffs (iso-profit schedules) in the market. The maximum (envelope) of these will prevail since they represent the maximum compensating wage that can be paid for each given level of risk while still maintaining competitive profits: such compensating wage offers will clearly dominate lower offers by firms and hence they will prevail in the market. This schedule is the employer's maximum compensating wage offer curve.

The locus of tangencies between the employer's maximum offer curve and the worker's minimum acceptance wage defines the equilibrium compensating wages that will prevail in the market for different levels of risk.

There will be a unique wage paid for every given level of risk (for which employers and employees are in equilibrium, i.e., at a tangency); however, the additional wage paid for additional amounts of risk need not be the same given the different preferences of workers and indivisibilities in the safety technologies of firms. In other words, the market wage-risk locus need not be a straight line, but can be of any configuration.

Risk-averse workers will sort themselves into low risk jobs and receive a correspondingly low compensating wage; those who do not have as strong an aversion to risk will take riskier jobs in return for higher pay. Firms in turn have an incentive to invest in safety and reduce risk so as to save on the required compensating wage. However, firms for which investment in safety (e.g., machine re-design, training, changes in the pace of work) are expensive will opt for a riskier work environment and pay compensating wages. The market allows -- in fact, encourages -- firms to choose their optimal level of risk and workers to accept these risks in return for compensating wages.

In the absence of any externalities (actions which affect others and for which the market does not automatically extract payment) this competitive outcome is termed optimal or efficient in the sense that no one can be made better off without making anyone else worse off. If they could, then the incentives would be there for the parties to engage in trade; for example, for the parties to trade off higher wages for more risk or vice versa. The outcome would be efficient, but it certainly need not be equitable: some workers may be compelled to accept dangerous work simply to make a living or to get any job, others may not be able to afford to acquire the information about hazards, and others may end up

with undesirable jobs in all respects -- pay, working conditions and safety. The competitive market, to the extent that it exists, only ensures efficiency, not equity or fairness.

As applied to the labour market this hedonic approach suggests that variation in wage rates can be used to measure the labour market valuations of certain worker characteristics. Evaluation of worker characteristics has a long history in the human capital literature where economic returns are imputed to differences in such factors as education, training and experience. The evaluation of job characteristics, of which safety is one such characteristic, does not have as long a history; nevertheless, there is a recent literature and it has been applied specifically to the measurement of compensating wages for hazardous work.

Econometric Procedure and Risk Measures

Econometrically, the procedure is to regress wages on various job characteristics, including measures of safety or hazard, while controlling for the influence of other wage determining factors. The resultant regression coefficients indicate the change in wages associated with a unit change in the job characteristic such as a job hazard. It is the shadow price or compensating wage paid for the hazard.

Most of the wage equations estimated in the literature are based on large micro data files while relate the wages of individual workers to various wage determining characteristics, including some measure of the risk of the person's occupation and/or industry. Various measures of risk have been used including death rates, nonfatal injury rates (both permanent and temporary disability injuries), measures of the severity of risks (e.g., days lost), measures of bad working conditions (which include hazards), and self-reported perceptions of hazards. Since most of these measures involve safety hazards rather than health hazards associated with occupational diseases, they may be of limited information for evaluating hazards arising out of asbestos exposure, especially given the information problem and the long latency period.

Needless to say there is no consensus in the literature on the "best" risk measure. Measures of severity are often criticized for including large elements of randomness (presumably they are influenced by the ability of the injured workers to return to work as well as by the severity of the accident); measures of bad working conditions may compound hazards with other conditions; and self-reported hazards may be subject to self-reporting biases in that people may perceive their work as being more hazardous if they feel dissatisfied with other aspects of the job, including pay.

In spite of this potential problem with self-reporting hazards, they may be useful for particular hazards like asbestos, the results of which may not be reflected in accident statistics or even in current health statistics given the latency period of associated diseases. In addition, perceptions (which is the phenomenon reflected in self-reporting) are what give rise to demands for compensating wages, even if such perceptions do not correspond completely to reality.

Econometric Problems

There are numerous econometric problems encountered in the literature: some have been accounted for by some of the researchers, others remain unresolved often because of data problems. The econometric problems tend to be typical of those encountered in much labour market research: the literature on compensating wages is simply not immune from these typical problems.

Simultaneous equation bias:

Simultaneous equation bias may exist to the extent that work hazards are a function of wages as well as wages being a function of hazards. (The

latter direction of causality is the only one considered in single-equation estimates of compensating wages for hazardous work). Wages may affect hazards in a variety of ways. High wage workers may use their high income to buy a safer work environment. In addition, the monetary cost of an accident is higher to them because it involves more forgone income. These are the familiar income and substitution effects, respectively, of economic theory and they predict that higher wages, other things equal, should lead to a safer work environment. Single-equation estimates of compensating wages for hazardous work, which fail to account for this reverse causality, may yield biased estimates of the compensating wage premium. Only a few studies (e.g., Chelius, 1974; McLean, Wendling and Neergeard, 1978) have used simultaneous equation techniques to account for the two-way causality.

Errors in variables:

Problems of "errors-in-variables" may also exist especially in those studies that regress an individual's wage on an aggregate measure of risk such as the injury rate of the person's occupation. Such an aggregate measure of risk is likely to be subject to considerable random error as a proxy for the risk that any individual will face in that occupation. The resulting measurement errors in the independent variable of risk will lead to an "attenuated slope" or downward bias in the risk coefficient, hence leading to a systematic underestimation of the compensating wage premium for risk. In most circumstances there is not much one can do about the problem except to use disaggregate measures of risk that are as specific as possible for the individual whose wages are being measured.

Omitted variables:

Biases from omitted variables are also a problem in the estimation of

any wage equation, and this is no less true in hedonic wage equations that attempt to estimate wage-risk tradeoffs. This is especially the case in those studies that relate wages of individuals to their human capital characteristics and job characteristics including risks. Omission of any wage-determining variables that are systematically correlated with the included risk variable will lead to a bias in the wage premium for risk, the direction of the bias depending upon the direction of the correlation between the omitted variable and the dependent variable and the included risk variable. In essence, the risk variable may be "picking up" the influence of omitted variables with which it is correlated.

For example, the bargaining power (as represented by unionization) of workers may be an important variable that is positively correlated with wages and negatively correlated with risks. That is, workers with no bargaining power have to accept numerous undesirable job characteristics including low wages and high risks. Failure to control for this factor of bargaining power may mean that the risk variable is picking up some of the negative influence of the omitted bargaining power variable. That is, workers in high-risk jobs may have little bargaining power and that is why they have low wages -- not because there is no wage premium for risky work. In other words, if bargaining power were properly controlled for, more of the risk premium may be observed: in some situations the absence of a strong risk premium may be due to the failure to control for a relevant omitted variable such as bargaining power.

To the extent that data limitations preclude the inclusion of crucial omitted variables there is not much one can do about the problem except recognize its presence and perhaps make qualitative statements about the direction of any possible bias. In the study by Brown (1980) -- to be

discussed subsequently -- omitted variable biases were minimized by the use of the "fixed-effect" technique, which is possible with pooled longitudinal and cross-section data tracing the same individuals over time. However, such data is rarely available.

Sample selection bias:

Sample selection biases may also prevail, and as Heckman (1979) pointed out, these can be treated as a specification error due to omitted variables. In the compensating wage literature this bias may occur to the extent that estimates are based on a sample that is not randomly taken from the population of workers one wants to make statements about. For example, if estimates are based on a sample of risky occupations (because actuarial data is available only on risky occupations, as in the Thaler and Rosen (1975) and Arnould and Nichols (1981) studies), then the resulting wage premiums for risk may not reflect the premiums for other more risk-averse workers. Correcting for this possible bias has <u>not</u> been done in the literature. It would require estimating the determinants of the sample selection rule (why workers enter the risky occupations), and including an adjustment factor derived from these determinants into the compensating wage equation (Heckman 1979). In this fashion the sample selection rule is treated as an omitted variable and classical estimation techniques can be used. The resultant wage premium for risk can then be interpreted as the compensating wage that results after controlling for differences in the propensity of workers to enter risky occupations. Needless to say this correction is only necessary in cases where the sample data are not representative of the risks for the entire workforce and where one wants to make statements about the compensating wage premium that prevails for all workers, not just those in risky occupations.

Functional form:

The previous discussion of sample-selection bias suggested that compensating wage premiums estimated from a sample of risky occupations may not reflect the risk premium for risk-averse workers. It is tempting to argue (as is often the case in the literature) that the premium for changes in risk is smaller for workers in risky occupations; that is, risk takers demand a smaller compensating wage for risk than do risk-averse workers. However, as discussed earlier in the theoretical section, it is not really possible to make any formal statements about the shape of the wage-risk locus that prevails in the market. Risk-takers may well have pushed themselves to the margin of risk such that they require as large, if not a larger, premium for additional risk as risk-averse workers require. The market equilibrium only requires that a unique premium exists for every level of risk, not for changes in risk, and it is premiums for changes in risk that are being measured in the econometric literature.

Thus there may not be a unique wage premium for changes in risk, but rather different premiums for different levels of risk (and the different individuals and work environments associated with those different levels of risk). This suggests that the wage-risk relationship be estimated in a nonlinear functional form, and one that allows changes in the direction of that relationship as risk changes. This has not been done in the literature which usually utilizes a logarithmic functional form of wages, implying increasing premiums for additional risk (i.e., a constant percentage premium which implies a larger absolute premium as risk and wages increase).

Econometric Studies

In varying degrees the empirical studies of compensating wages for hazardous work face a number of the econometric problems previously discussed. Many try to account for some of the problems, but virtually none are problem free, often because of limitations of the data. While these econometric problems do prevail, they are probably no more serious -- nor less serious -- than those that exist in most areas of quantitative labour market analysis. Hence the reliability of the estimated compensating wage premiums for hazardous work are fairly typical of the reliability of other estimated relationships in labour market analysis.

The studies are reviewed here usually in chronological order, on a study-by-study basis. With the exception of the paper by Hinton (1980), which uses Canadian data, all are based on U.S. data. (As is so often the case with the quantitative analysis of labour markets, Canadian studies are simply not available.)

Smith (1973, 1976):

Based on data for white males from the 1967 Current Population Survey, Smith (1973) estimated positive and statistically significant wage premiums for hazards that increase the risk of death in the individual's industry. However, the evidence for nonfatal injuries was mixed. Regressions reflecting the severity of accidents did not find any positive and statistically significant premiums for hazardous work; in fact, the "premiums" were often negative. In regressions reflecting the incidence (but not severity) of accidents, a positive and statistically significant premium was usually (but not always) found for risks of permanent impairment but statistically significant, although small, negative "premiums" were usually found for risks of temporary impairment. In essence, wage premiums appear to exist

for fatal risks; however, the evidence for nonfatal risks is less clear, tending to show a wage premium for permanent impairment but a negative "premium" for temporary impairment. The magnitude of the premiums tended to reflect the seriousness of the risk, being largest for a risk of death and smallest (usually negative) for a risk of temporary injury.

In an update of his earlier study, Smith (1976) utilized 1973 data from the same survey. However, he used the manufacturing sector only and excluded measures of nonfatal risk. The results confirmed the existence of a positive and statistically significant wage premium for the risk of death, although the magnitude was substantially smaller than the estimate from the 1967 data. (Smith's 1973 results are also contained in Smith 1974, and his 1973 and 1976 results are both discussed in Smith 1979).

Smith (1976, pp. 94, 95) also found the somewhat surprising result that unions were associated with higher injury frequency rates although the relationship was statistically insignificant. The estimation procedure, however, treated unionization as exogenous and hence did not allow for reverse causality; that is, for the possibility that unionization is more likely to arise in an unsafe work environment.

Chelius (1974):

Based on a sample of 2,627 U.S. firms, Chelius (1974, pp. 726, 729) found a statistically significant but negative relationship between the average wage and the injury rate of the 4 digit SIC industry of each firm. This suggests that firms with high injury rates pay lower wages even when other wage determining factors are held constant through regression analysis. However, his analysis is based on aggregate data (industry averages) rather than data using individuals as the unit of observation, and hence the controls for other wage-determining factors are probably very imperfect (e.g.,

occupational wage differentials are controlled for only by including the percentage of production employees). To a large extent then, this negative relationship between wages and risk may reflect the gross relationship that prevails when other wage determining factors are not controlled for: low wage firms also have poor working conditions including high accident rates.

Chelius (p. 28), like Smith (1976), found that unionization was associated with higher injury rates, although unlike Smith, Chelius found the relationship to be statistically significant. In both studies, however, unionization was treated as exogenous so that the estimation procedure did not control for the reverse causality -- that is, for the possibility that an unsafe work environment encourages unionization.

Thaler and Rosen (1975):

Using actuarial data on the risk of death in a number of risky occupations, Thaler and Rosen (1975, pp. 289-94) find a positive and statistically significant wage premium associated with additional risk, and they find that unionism increases the risk premium. They also find the simple or gross correlation (when other wage-determining factors are not controlled for) to be negative, indicating that it is extremely important to control for other wage-determining factors in estimating a pure trade-off between wages and safety. In other words, poor jobs often have numerous undesirable characteristics including low wages and high risks and good jobs tend to have high wages and low risks; hence it can appear that wage premiums are not given for hazardous work when one simply looks at the raw data (e.g., a simple correlation). However, when other wage-determining characteristics are held constant, such as through regression analysis, a wage premium for hazardous work does prevail.

Lucas (1977):

Lucas regresses the earnings of individuals (from the Survey of Economic Opportunity) on various wage-determining characteristics including a measure of the probability that their job involves a work environment with at least one of the following dangerous or unpleasant physical conditions: wet or humid conditions; sufficient noise to cause marked distraction or possible injury to the sense of hearing; definite risk of bodily injury; fumes, odors, toxic conditions, dust or poor ventilation. Separate earnings equations were estimated for each sex, race and level of education. The results generally indicated that a positive and statistically significant compensating wage premium was paid for such dangerous working conditions, even when other wage-determining characteristics, including other undesirable working conditions, were controlled.

Hamermesh (1977):

Based on a self-reported perception of job hazards, Hamermesh (1977, pp. 63,65) estimates a positive wage premium associated with most (but not all) hazardous aspects of the job; however, the relationships were statistically insignificant. He attributes the lack of a statistically significant risk premium to the fact that the job hazards are self-reported: those with low pay are likely to be dissatisfied with their job and hence respond that there are numerous disamenities (including hazards) in their workplace. In essence their perceptions of hazards (and this is what they report) are not independent of the wage that they might be paid to compensate for these hazards.

Viscusi (1978):

Based on the 1969-70 University of Michigan Survey of Working Conditions (survey of individuals providing the most detailed information

available on the nature of the individual's job), Viscusi (Autumn 1978) found a positive and statistically significant wage premium for jobs with high injury rates (fatal and nonfatal injury rates combined) as well as for jobs with a self-reported hazard. Based on the same data set, Viscusi (Summer 1978) decomposed the injury rate into its fatal and nonfatal components and found a statistically significant and larger positive wage premium for increases in the risk of death than increases in the risk of nonfatal injury. In fact, in some regressions, the wage premium for nonfatal injuries was statistically insignificant.

McLean, Wendling and Neergaard (1978):

Based on 1970 census data for the state of Wisconsin, McLean, Wendling and Neergaard (1978, p. 103) estimate a simultaneous equation model to account for the possibility that accident rates may depend upon wages as well as vice-versa. Their data enables them to relate the wages of individuals to various characteristics including the accident frequency of their industry and occupation. Their results indicate positive compensating wage premiums associated with higher accident rates, (the coefficients were barely statistically significant in one formulation and barely statistically insignificant in another formulation of the wage equation).

Olson (1979):

Based on the 1973 Current Population Survey and data on accident rates by industry, Olson (1979) estimated a positive and statistically significant compensating wage for fatal hazards, with the premium for additional risk increasing at a decreasing rate. A positive wage premium was also associated with nonfatal risk; however, the relationship was often statistically insignificant. The wage premium was also positively related to the severity of the nonfatal risk (with severity measured by

workdays missed for individuals experiencing a lost workday injury). Relative to nonunion workers, unionized workers received a larger premium for fatal risk but the union effect for nonfatal risk was ambiguous.

The results also indicated that unions generally were able to obtain larger compensating wages for risk for their members: this is over-and-above their usual impact on wages of their members. In fact, separate regressions for union and nonunion workers indicated that nonunion workers received much smaller risk premiums and they were often statistically insignificant. This suggests that the positive compensating wages for risk that tend to be found in most studies (ones that can't distinguish between union and nonunion workers) may occur because unions are able to extract such premiums, rather than this being a result of market forces. Without unions, individuals may not have the information or bargaining power to obtain compensating wages for hazardous work.

Olson also found the somewhat surprising result that unionization was not associated with reduced hazards at the workplace, even when simultaneous equation techniques were used to account for the possibility that unions are more likely to organize in high risk sectors (that is, when unsafe work may encourage unionization). To summarize Olson (p. 222): "Unions increase the frequency but decrease the severity of lost workday accidents. The net effect of these two opposite effects is that unions have no effect on expected days lost per year due to injuries. While the estimated union effect on the other accident measures were positive, none of these effects were statistically different from zero."

Brown (1980):

Brown (1980, pp. 129, 130) uses the National Longitudinal Survey Young Men's sample which provides seven years of data on the labour market

experiences of males age 14-24 in 1966 and which provides an extensive list of individual characteristics. The risk variables were a measure of bad working conditions (including hazards) and an actuarial measure of the death rate associated with each individual's occupation. The pooled cross-section longitudinal data enables the use of "fixed-effect" models to control for omitted variables (e.g.,initiative, basic intelligence) that are believed to affect earnings and that are often omitted from earnings equations because of lack of data. In essence, it is reasonable to assume that these factors do not change much over time (i.e., they are innate to the individual) and hence they can be controlled for by the use of individual-specific intercepts: the fact that other variables associated with the individuals do change over time provide the necessary degrees-of-freedom to estimate the earnings equation.

Based on the fixed-effect equations, Brown finds a positive but statistically insignificant wage premium for increased risks of death, and a negative but statistically insignificant "premium" for bad working conditions. When the equations are estimated without the fixed-edffect procedures the results are the same except they are statistically significant. In summary the results provide some weak evidence indicating that a compensating premium exists for extreme risks like death but not for lesser hazards.

Brown also reviews eleven other studies of compensating wage differentials for various job characteristics (including risk in some of the studies) and concludes (p. 118): "The overall pattern that emerges ... is one of mixed results: some clear support for the theory but an uncomfortable number of exceptions." The fact that his own study comes up with similar mixed results suggests that the inconclusive results are not

due to certain omitted variables, since such factors are at least partially controlled for in his analysis by the use of fixed-effect models.

Arnould and Nichols (1981):

Arnould and Nichols (1981) utilize the 1970 U.S. Census data to relate the wages of individuals to various wage determining characteristics including the actuarial risk of death in their particular occupation class. The results indicate a positive wage premium associated with increased risk of death; however, the premiums are marginally statistically significant in one formulation and insignificant in two others. The premium is larger under unions and smaller when workers' compensation covers some of the risk. (It is not possible, with the information provided, to know if the union impact on the premium is statistically significant since its impact is embedded in a principal component factor, that technique being used to reduce multicolinearity).

Hinton (1980):

To our knowledge the only Canadian econometric estimates of compensating wages for hazardous work are contained in a recent working paper by Hinton (1980). The data base is from the Ontario Workmen's Compensation Board and consists of 108 occupational-industrial categories, grouped according to a common level of hazard for purposes of employer premiums for workers' compensation. Data for the four years 1975-78 for the 108 groups yielded 432 pooled cross-section, time-series observations and enabled the use of a fixed-effect model to control for differences in job characteristics and worker human capital characteristics. The sample is dominated by male blue-collar workers in manufacturing and construction. The average wage in each group was regressed on the average nonfatal accident rate in each

group (other variables being controlled for by the use of the fixed-effect model) to estimate the compensating wage premium for hazardous work. The accident measure was temporary total disability accidents which accounts for 95 percent of all reported accidents, the other accidents being fatal, permanent disability, and temporary partial disability.

The empirical results indicate the existence of a positive compensating wage premium for risk. The premium is statistically significant according to a one-tailed test at the .01 level in the linear and polynomial specification, and at the .10 level in the semilog specification. The magnitudes of the wage premium also appear plausible: calculations indicate that the average annual compensation for the average frequency of accident was $440 which was 3.6 percent of earnings at that time. This compensation was for the uninsured portion of risk since workers' compensation would insure against at least some of the risk. The results are also comparable to U.S. results, notably those in Viscusi (Summer 1978) which are also based on nonfatal accident rates.

Summary of Results:

The econometric literature tends to confirm the existence of a compensating wage premium for hazardous work; however, this is by no means a firm conclusion found in all studies. In many cases the relationship is statistically insignificant and in some it is even of the wrong sign, especially for less serious hazards.

The compensating wage premiums seem plausible in magnitude and they increase with the seriousness of the risk. That is, they are larger for risks of death than risks of injury, and for risks of injury they are larger for permanent than temporary injuries. In fact for the less serious risks compensating wage "premiums" are often negative.

Some limited evidence suggests that the compensating wage premium is smaller when workers' compensation covers some of the risk and that unions are able to extract a larger compensating premium. In fact it may be the case that unions are necessary to extract any compensating wage premium and that market forces are insufficient; however, the evidence on this important point is very limited.

The econometric literature also confirms the casual empiricism that workers in low-wage jobs often have high risks (which has led some observers to conclude that there is no trade-off between wages and safety). This gross relationship does prevail; however, it occurs because some workers receive the worst of all conditions in the labour market, including low wages and poor working conditions. When other wage-determining factors are controlled for, the expected partial relationship of a wage premium for hazardous work appears to prevail.

A small number of econometric studies tend to find the surprising result that unionization is associated with higher accident rates, the relationship being statistically significant in two studies (Chelius, 1974, Olson,1979) and insignificant in one (Smith,1976). While this may reflect the possibility that unionization is more likely to occur in unsafe work environments (this direction of causality not being controlled for in either Chelius or Smith) the positive relationship did still prevail in the study by Olson which accounted for this possibility. Some may interpret this as evidence that unions win compensating wages for their members (which the evidence confirms) but at the expense of safety, or that in response to union wage increases employers are able to adjust certain working conditions, such as the pace of work, and that these may result in more hazardous work.

However, such conclusions cannot safely be drawn from such a limited amount of evidence. It is likely that the relationship reflects, at least in part, inadequate control for such possibilities that unionization is more likely to occur in unsafe work environments, that accident reporting may be more prevalent in unionized firms, and that injured union workers are more likely to be able to take time off work when injured, and hence to be included in the injury statistics. Clearly more research is needed in this important area.

Until that is done the tentative conclusion that emerges is that the evidence does not indicate unions to be associated with a reduction in occupational risk, at least as that risk is conventionally measured. However, unions are able to win compensating wages for their members and there is some evidence to suggest that such compensating wages would not be forthcoming without unions.

APPENDIX B

UNION PRESENCE FOR WORKERS UNDER MEDICAL SURVEILLANCE FOR ASBESTOS, ONTARIO, 1980

(Excludes Major Manufacturing Firms of Asbestos Product Manufacturers as Given Separately in Table 6.1)

Company	Location	Employees Exposed	Union Presence (1=Yes)[a]	Employees in Bargaining Unit[b]
		(1)	(2)	(3)
ZONE 1 (Peterborough Area)				
Balselite Thermosets	Belleville	20	0	0
Branson Machine & Tool	Peterborough	10	0	0
Canada Talc Ind. Ltd.	Madoc	26	1	14
Canadian General Electric	Peterborough	150	1	326
Dayton Tire	Whitby	86	0	0
J.N.C. Limited	Ajax	41	1	10
Ontario Gypsum Limited	Ajax	5	0	0
Pennkote Limited	Ajax	3	0	0
Reichold Chemicals	Lindsay	6	1	12
Trent Rubber	Lindsay	143	0	0
Proportion in Company with Union		.455	.400	
ZONE 2 (Kingston-Ottawa Area)				
Alcan Canada	Kingston	2	1	1202
Applied Insulation	Kingston	2	0	0
Asbestonos Corp. Ltd.	Ottawa	6	0	0
Genstar Chemical	Brockville	13	1	183
Dupont of Canada	Maitland	19	0	0
Industrial Moulders	Jasper	7	0	0
Kingston Psychiatric Hosp.	Kingston	4	1	6307
Ontario Hydro	Ralphton	7	1	208
Ottawa Perma-Coating	Ottawa	4	0	0
Sadler, James & Son	Ingleside	15	0	0
Proportion in Company with Union		.329	.400	

Company	Location	Employees Exposed	Union Presence (1=Yes)[a]	Employees in Bargaining Unit[b]
ZONE 3 (Northern Ontario)				
Abitibi Paper Co. Ltd.	Iroquois Falls	75	1	236
Alcan Canada Products	Bracebridge	22	1	253
Algoma Control Railway	Sault Ste. Marie	200	0	0
Algoma Central Railway	Hawk Junction	40	1	192
Algoma Steel	Sault Ste. Marie	2,500	1	6,900
Canadian Johns Manville	North Bay	7	1	445
Rufel Marble Products	Sault Ste. Marie	1	0	0
Proportion in Company with Union		.929	.714	
ZONE 4 (Hamilton Area)				
All Colour Paint & Chemicals	Oakville	6	0	n.a.
Babcock and Wilcox	Burlington	16	1	25
Blast-Teck Ltd.	Oakville	7	0	0
Canadian Ferro Hot Tops	Stoney Creek	27	1	18
Canadian Meter Co. Ltd.	Milton	22	1	75
A.W. Chesterton Company	Burlington	2	0	0
Crane Packing	Stoney Creek	16	1	58
Currie Products	Hamilton	9	1	22
Dofasco	Hamilton	200	0	0
Endur Environment	Burlington	8	0	0
Hamilton Match Plate	Hamilton	7	0	0
Inmont Presstite	Georgetwon	7	0	0
Kaiser Refractories	Oakville	37	1	29
Master Paint & Varnish	Hamilton	2	0	0
Niagara Paint & Chemical	Hamilton	6	0	0
Plastics & Asbestos Products	Hamilton	14	0	0
Plibrico Canada	Burlington	39	0	0
Provincial Brake & Clutch	Hamilton	2	0	0
Rheem Canada Ltd.	Hamilton	30	1	208
Robert Soper Ltd.	Chatham	11	0	0
Thompson-Gordon	Hamilton	15	0	0
Westinghouse Canada Ltd.	Hamilton	20	1	2003
Proportion in Company with Union		.352	.364	

Company	Location	Employees Exposed	Union Presence (1=Yes)[a]	Employees in Bargaining Unit[b]
ZONE 5 (Brantford-Niagara Falls Area)				
Canadian Cylinder	Brantford	19	0	0
Canadian Gasket	Fort Erie	50	1	30
Canadian Gypsum	Hagersville	294	0	0
Cataract Canvas Ltd.	Niagara Falls	22	0	0
Domtar Construction	Brantford	70	1	85
Domtar Construction	Caledonia	190	0	0
General Motors of Canada	St. Catharines	1,780	1	26,000
Hamilton Porcelains Ltd.	Brantford	79	1	70
Harding Carpet Ltd.	Brantford	40	1	236
Kirkwood Commutators Canada	Brantford	39	1	24
Mott Manufacturing	Brantford	19	0	0
Niagara Protective Coatings	Niagara Falls	9	0	0
North American Refractories	Caledonia	12	1	15
Ontario Hydro	Nanticoke		0	0
Pratt and Lambert	Fort Erie	36	1	29
Scarfe and Co. (Inmont)	Brantford	13	1	36
Sterling Varnish	St. Catharines	40	0	0
Proportion in Company with Union		.781	.529	
ZONE 6 (Toronto Area)				
Acro Gasket Ind.	Rexdale	23	0	0
Albion A.A.P. Inc.	Toronto	10	0	0
Aluminum Goods (Alcan)	Toronto	54	1	110
Amalgamated Electric	Markham	6	1	150
Apco Industries	Toronto	6	0	0
Asbestos Building Supplies	Toronto	10	0	0
Asbestos Corporation	Toronto	8	0	0
Benjamin Moore & Co. Ltd.	Toronto	50	0	0
Bondex International	Bramalea	4	0	0
C.I.L. Paints	Concord	89	1	221
Canada Colours & Chemicals	Brampton	11	0	0
Canada Varnish (CVI Paints)	Toronto	15	1	23
Canadian Asbestos Ontario	Toronto	9[c]	0	0

Compnay	Location	Employees Exposed	Union Presence (1=Yes)[a]	Employees in Bargaining Unit[b]
ZONE 6 (Toronto Area) -- cont'd.				
Canadian Coleman	Etobicoke	39	1	291
Canadian General Electric	Toronto	190	1	1,532
Canadian Gypsum Co. Ltd.	Toronto	60	0	0
Canadian Industries	Toronto	36	1	147
Canadian Rockwell Co. Ltd.	Toronto	22	0	0
Cantire Products Ltd.	Toronto	78	0	0
Central Precision	Rexdale	20	1	136
Chembond Ltd.	Mississauga	13	0	0
Chevron Asphalt	Toronto	8	0	0
Childers Products Co. Ltd.	Mississauga	3	0	0
Crupi, D and Sons Ltd.	Agincourt	5	0	0
Colour Your World Inc.	Toronto	8	0	0
Crouse-Hinds Canda Ltd.	Scarborough	72	1	360
Crowle Fittings Ltd.	Brampton	3	0	0
Desota Coatings	Toronto	17	0	0
Downs Wood Ltd.	Toronto	17	0	0
Dupli-Color (Canada) Ltd.	Scarborough	23	0	0
Electrolyser Corp.	Etobicoke	38	0	0
Erico Inc.	Toronto	10	0	0
Fuller H.B. Canada Inc.	Mississauga	2	1	6
Gibson-Holmans	Toronto	9	0	0
Goodyear Canada Inc.	Toronto	136	1	1,450
Gulf Canada Products	Mississauga	9	1	470
Hemispheres International	Downsview	55	1	56
House of Sturgeon (Chemicals)	Weston	11	0	0
IBIS Products Ltd.	Scarborough	13	0	0
Industrial Coating Co.	Weston	5	0	0
K.G. Packaging	Concord	11	0	0
Knecht Berchtold Ltd.	Brampton	19	0	0
Lee Chemicals	Toronto	1	0	0
LePage's Ltd.	Bramalea	129	1	158

Company	Location	Employees Exposed	Union Presence (1=Yes)[a]	Employees in Bargaining Unit[b]
ZONE 6 (Toronto Area) -- cont'd.				
Lever Detergents	Toronto	11	1	410
Liquid Carbonic Canada Ltd.	Scarborough	110	1	110
Markham Sand & Gravel Ltd.	Buttonville	4	0	0
Masse Manufacturing	Toronto	2	0	0
Miller Paving	Toronto	3	0	0
M.S.A. Canada	Downsview	22	0	0
Mobil Chemical Canada Ltd.	West Hill	83	1	67
Monleith, A.R. (77) Ltd.	Mississauga	14	0	0
National Health & Welfare	Toronto	18	0	0
North York Board of Ed.	Willowdale	35	1	220
Ontario Hydro	Toronto	60	0	0
Ontario Hydro	Port Credit	110	0	0
Ontario Reman	Rexdale	3	0	0
P.P.G. Industries Canada Ltd.	Mississauga	80	0	0
P.P.G. Industries Canada Ltd.	Toronto	130	1	75
P.R.C. Chemical Corp.	Weston	25	0	0
Parr Industries Ltd.	Weston	11	0	0
Para Paints Ltd.	Rexdale	42	0	0
Pattern Matchplate Inc.	Downsview	8	0	0
Professional Texture System	Markham	8	0	0
Repac Const. & Materials	West Hill	5	0	0
Royal Industries(Cert. Brakes)	Rexdale	316	0	0
Safeco Manufacturing Ltd.	Scarborough	16	0	0
Seiberling Canada Ltd.	Toronto	300	1	286
Selectone Paints Ltd.	Weston	35	0	0
Sommerville Belkin Industries	Scarborough	72	1	59
Swingline of Canada Ltd.	Toronto	4	1	112
Tempo Paint & Varnish Co.	Weston	12	0	0
Texas Refinery Corporation	Toronto	4	1	3
Toronto Hydro	Toronto	60	1	460
Tremco Canada Ltd.	Toronto	120	0	0

Company	Location	Employees Exposed	Union Presence (1=Yes)[a]	Employees in Bargaining Unit[b]
ZONE 6 (Toronto Area) -- cont'd.				
Trend Coatings Ltd.	Weston	14	0	0
Universal Sealants Ltd.	Toronto	2	0	0
Viceroy Manufacturing Co.	Toronto	180	1	173
S.K. Wellman of Canada Ltd.	Concord	10	0	0
D.A. White Co. Ltd.	Toronto	2	0	0
Wilkinson Foundry	Toronto	22	0	0
Proportion in Compnay with Union		.556	.309	
ZONE 7 (Owen Sound Area)				
Collingwood Shipyards	Collingwood	25	1	800
Nor-Var Paints	Owen Sound	3	0	0
Ontario Hydro	Tiverton	114	0	0
P.P.G. Industries Canada Ltd.	Owen Sound	15	1	390
Proportion in Company with Union		.255	.500	
ZONE 8 (London-Stratford Area)				
Almatex Ltd.	London	114	1	93
Cleaver Brooks	Stratford	5	1	60
Durametallic of Canada Ltd.	St. Thomas	23	0	0
Firestone Textile Company	Woodstock	25	1	245
Hayes Dana Parts Co. Ltd.	St. Thomas	33	1	114
Ingersoll Machine & Tool	Ingersoll	120	1	118
Ranger Safety Products Ltd.	Simcoe	34	1	80
Richard Wilcox of Canada	London	273	1	320
Tobac Curing Systems	Simcoe	2	0	0
Proportion in Company with Union		.960	.778	
ZONE 9 (Windsor-Sarnia Area)				
Bendix Corp. of Canada Ltd.	Windsor	480	1	500
Byer's Truck & Trailer Equip.	Windsor	2	0	0
Inmont Canada Ltd.	Windsor	57	1	45
James & Carter Automotive	Sarnia	12	0	0
Ontario Hydro	Courtright	78	0	0
Southern Wood Products Ltd.	Petrolia	33	0	0
Welles Corporation	Windsor	75	1	150
Proportion in Company with Union		.830	.429	

Company	Location	Employees Exposed	Union Presence (1=Yes)[a]	Employees in Bargaining Unit[b]
ZONE 10 (Kitchener Area)				
Clare Brothers	Cambridge	5	1	105
Foseco Canada Ltd.	Guelph	34	1	128
Franklin Manufacturing	Cambridge	13	1	570
B.F. Goodrich Co. Canada	Kitchener	194	1	1,414
H.D. Pattern & Matchplates Inc.	New Hamburg	7	0	0
Kovzite Industries Ltd.	Guelph	12	0	0
Pirelli Cables Ltd	Guelph	3	1	265
Relmech Mfg. Ltd.	Elmira	38	0	0
Silcofab Ltd.	Guelph	52	1	60
St. Jacobs Canning	St. Jacobs	8	0	0
Tracon Engineering Ltd.	Waterloo	16	1	34
Uniroyal Chemical Division	Elmira	217	1	225
Walker Exhausts Ltd.	Cambridge	66	1	444
Proportion in Company with Union		.902	.692	
Total Proportion (all regions) in Company with Union		.745	.422	

Source: Same as for Table 6.1.

Notes: a. As in note c of Table 6.1.

b. As in note e of Table 6.1.

c. Exposed employees are now ex-asbestos workers.

APPENDIX C

ARBITRATION CASES DEALING WITH HEALTH AND SAFETY ISSUES (FROM L.A.C. SERIES 1 AND 2 (TO VOLUME 28))

Safety Equipment

1. Re Steel Co. of Canada Ltd. and United Steelworkers, Local 1005 (1980), 26 L.A.C. (2d) 76 (McLaren) - whether equipment safe.

2. Re United Electrical Workers, Local 512 and Delamere and Williams Co. Ltd. (1971), 23 L.A.C. 56 (Johnston) - employer obligation to provide safety shoes.

3. Re United Steelworkers of America and Dietbold of Canada Ltd. (1966), 16 L.A.C. 412 (Little) - employer obligation to provide safety shoes.

4. Re United Automobile Workers, Local 456 and Mueller Ltd. (1964), 15 L.A.C. 208 (Palmer) - safety shoes.

5. Re Motor Wheel Corp. and United Automobile Workers, Local 127 (1974), 7 L.A.C. (2d) 262 (Hinnegan).

Insubordination:

1. Re Continental Group of Canada Ltd. and Graphic Arts Int'l Union, Local 122 (1980), 26 L.A.C. (2d) 110 (Rayner).

2. Re National Harbours Board, Vancouver and Vancouver Harbour Employees Association, Local 517 (1974), 6 L.A.C. (2d) 5 (Monroe).

3. Re St. Catharines Fire Fighters' Assoc., Local 485 and the City of St. Catharines (1969), 20 L.A.C. 297 (Hanrahan).

4. Re United Steelworkers and Int'l Nickel Co. of Canada (1968), 19 L.A.C. 118 (Weatherill).

5. Re United Steelworkers, Local 2900 and John Inglis Co. Ltd. (1967), 18 L.A.C. 397 (Palmer).

6. Re United Automobile Workers, Local 1285 and American Motors (Canada) Ltd. (1966), 17 L.A.C. 210 (Krever).

7. Re United Automobile Wokers and Leepo Machine Products Ltd. (1966), 17 L.A.C. 33 (Palmer).

8. Re United Automobile Workers and Somerville Industries Ltd. (1965), 16 L.A.C. 334 (Little)

9. Re Int'l Chemical Workers, Local 721 and Brockville Chemicals Ltd. (1965), 16 L.A.C. 261 (Weatherill).

10. Re Int'l Chemical Workers, Local 216 and Domtar Construction Materials Ltd. (1964), 14 L.A.C. 365 (Anderson).

11. Re United Steelworkers, Local 4379 and Canadian Johns-Manville Co. Ltd. (1963), 14 L.A.C. 177 (Little).

12. Re Oil, Chemical and Atomic Workers, Local 9-593 and B.A. Oil Co. (1963), 13 L.A.C. 346 (Bennett).

13. Re Steel Co. of Canada Ltd. and United Steelworkers, Local 1005 (1975), 8 L.A.C. (2d) 375 (Palmer).

14. Re Steel Co. of Canada Ltd. and United Steelworkers, Local 1005 (1975), 8 L.A.C. (2d) 198 (O'Shea).

15. Re Steel Co. of Canada Ltd. and United Steelworkers, Local 1005 (1973), 4 L.A.C. (2d) 315 (Johnston).

16. Re Liquid Carbonic Canada Ltd. and United Steelworkers, Local 12998 (1975), 9 L.A.C. (2d) 52 (Shime).

17. Re Advocate Mines Ltd. and United Steelworkers, Local 7713 (1974), 6 L.A.C. (2d) 1 (Harris).

18. Re Mueller Ltd. and United Automobile Workers, Local 456 (1974), 7 L.A.C. (2d) 282 (Hinnegan)

19. Re United Steelworkers of America and Int'l Nickel Co. of Canada Ltd. (1968), 19 L.A.C. 118 (Weatherill).

20. Re United Automobile Workers, Local 127 and Eaton Springs Canada Ltd. (1968), 19 L.A.C. 308 (Weiler).

21. Re United Automobile Workers, Local 636 and F.M.C. of Canada Ltd., Link-Belt Speeder Division (1971), 23 L.A.C. 234 (O'Shea).

22. Re Dominion Chain Co. and Int'l Assoc. of Machinists and Aerospace Workers, Local 1927 (1980), L.A.C. (2d) (Teplitsky) .

Employer's Rules

1. Re Aclo Compounders Inc. and United Steelworkers (1980), 25 L.A.C. (2d) 209 (O'Shea) - whether Sikh should have to wear hard hat.

2. Re Int'l Nickel Co. of Canada and United Steelworkers, Local 6166 (1974), 5 L.A.C. (2d) 434 (Mitchell) - union right to discuss safety rules before issuance.

3. Re Lumber and Sawmill Workers, Local 2693 and Great Lakes Paper Co. Ltd. (1964), 15 L.A.C. 97 (Lane) - power saw operations.

4. Re General Motors Ltd. and United Automobile Workers, Local 222 (1980), 24 L.A.C. (2d) 388 (Palmer) - exclusion of women of child-bearing age from lead exposure.

5. Re Koehring-Waterous Ltd. and Int'l Assoc. of Machinists, Lodge 1105 (1974), 6 L.A.C. (2d) 83 (O'Shea) - clothing.

6. Re Corp. of District of North Vancouver and Int'l Assoc. of Fire Fighters (1974), 6 L.A.C. (2d) 203 (McIntyre) - personal appearance.

7. Re Corp. of Borough of Etobicoke and Int'l Assoc. of Fire Fighters, Local 1137 (1974), 6 L.A.C. (2d) 251 (Rayner) - personal appearance.

8. Re Denison Mines Ltd. and United Steelworkers, Local 5762 (1973), 2 L.A.C. (2d) 186 (Krever).

Re-assignment or Discharge for Safety Reasons

1. Gould Manufacturing of Canada and Int'l Assoc. of Machinists, Lodge 863 (1973), 3 L.A.C. (2d) 219 (Ord) - lack of training-re-assignment.

3. Re Ontario Hydro Employees Union, Local 1000, CUPE and Hydro-Electric Power Commission of Ontario (1969), 20 L.A.C. 432 (Hanrahan) - discharge for safety reasons.

4. Re Cominco Ltd. and United Steelworkers, Local 480 (1977), 14 L.A.C. (2d) 283 (Chertkow) - lead exposure - re-assignment.

5. Re Domtar Chemicals Ltd. and Oil, Chemical and Atomic Workers (1975), 8 L.A.C. (2d) 285 (Brandt).

6. Re Robertson Irwin and Int'l Assoc. of Iron Workers, Local 734 (1974), 6 L.A.C. (2d) 410 (Brown) - eyesight - discharge.

7. Re St. Paul's Hospital and Registered Nurses' Assoc. of British Columbia (1980), 28 L.A.C. (2d) 51 (Vickers) - radiation exposure - re-assignment.

8. Re Singh and Crown in Right of Ontario (1980), 27 L.A.C. (2d) 293 (Eberts).

Compensation(after refusal to work)

1. Re Great West Steel Industries Ltd. and United Steelworkers, Local 4515 (1976), 10 L.A.C. (2d) 134 (Shime) - cold.

2. Re United Automobile Workers, Local 127 and Ontario Steel Products Ltd. (1972), 23 L.A.C. 386 (Hinnegan) - cold.

3. Re Canadian Food Workers, Local 1105 and Canada Packers Ltd. (1970), 21 L.A.C. 12 (Weatherill) - safety goggles.

4. Re E.B. Eddy Forest Products Ltd. and Lumber and Sawmill Workers Union, Local 2693 (1979) 24 L.A.C. (2d) 17 (Simmons) - rain - under EHSA.

5. Re Commonwealth Construction Co. Ltd. and Int'l Brotherhood of Electrical Workers, Local 213 (1979), 24 L.A.C. (2d) 223 (McColl).

6. Re Great Canadian Oil Sands Ltd. and McMurray Independent Oil Workers (1979), 22 L.A.C. (2d) 426 (Lucas).

7. Re Domtar Chemicals Ltd. and Int'l Chemical Workers, Local 682 (1975), 8 L.A.C. (2d) 346 (Weatherill).

Discipline (Safety Related)

1. Re United Automobile Workers, Local 195 and National Auto Radiator Manufacturing Co. (1964), 15 L.A.C. 270 (Cross) - safety committeeman ordering work slowdown.

2. Slater Steel (1975), 8 L.A.C. (2d) 135 (Shime) - failure to follow safety procedure.

Occupational Health and Safety Act

1. Re Perley Hospital and Ontario Nurses Assoc. (1980), 29 L.A.C. (2d) 178 (Barton) - compensation.

2. Re Eastern Steelcasting and United Steelworkers, Local 8794 (1981), 28 L.A.C. (2d) 310 (Adell) - refusal under OHSA.

APPENDIX D

CASE STUDY - CERTIFIED BRAKES

Certified Brakes, a company in Mississauga, was chosen as a case study for several reasons. As a manufacturer of after-market brake friction products since 1948, the company is a heavy user of asbestos. As well, it has a large workforce of 550 to 600 employees (with approximately 400 exposed to asbestos). The seniority list indicates that 58 employees have seniority dates of 1970 or earlier and 169 from 1971 to 1975. There is about 20% annual turnover.

The plant has been organized by the United Steelworkers of America since February 1967, thus providing an opportunity to study the extent of collective bargaining on occupational health and safety. The company has also had a history of noncompliance with the exposure limit for asbestos over the last eight years, leading to frequent government inspections, confrontation with the the union, and finally four work stoppages in 1979 and 1980. This problem of compliance has been greatly alleviated by the move to new premises between June and December 1979. Over the last two years, there have been many management efforts to improve health and safety conditions. Finally, there has been an active joint health and safety committee for several years. These characteristics of the plant provide an opportunity to study the various institutions for the regulation of occupational health in a workplace which uses asbestos.

History

Prior to the move to its new plant in Missisauga in 1979, the company was located in Rexdale. It was frequently visited by Ministry of Labour inspectors because of problems in complying with the exposure limit for asbestos. The manufacturing process provided many opportunities for disbursing asbestos dust into the air. For example, bags of raw asbestos were manually opened and dumped into mixers. Dust also found at the pre-form presses, and at drilling and grinding stations.

Air quality assessments were frequently above the exposure limit. In fact, in a two year period between May 1977 and April 1979 numerous samples were above the 2 fibres/cc. limit, although with a reduction in the mean concentration over the period. Various directions were issued by Ministry inspectors over the years and compliance was usually forthcoming, although sometimes not immediately. For example, in August, 1977, directions requiring better exhaust systems, removal of dust from preform pads and the wearing of respirators in the interim were given. The company had problems in compliance because of technical problems. They had to give up on initial plans to enclose pre-forming machines and concentrate on moving them to a separate room.

There is some debate as to union acceptance of the delay. A health and safety representative of the Steelworkers' Toronto office issued a report criticizing the plant in June 1977, which, he felt, had not been addressed by October of that year (Testimony, Vol. 4, p.121). At this time, the union was suffering from information problems, as inspectors' reports and air quality assessments were not disclosed to the union.

The reports were finally obtained in 1978 through the request of a member of the Legislature.

Nevertheless, there appears to have been some dialogue between the union and company during this period. The union agreed to the use of respirators for an interim period in July, 1978, while in a letter dated February 3, 1978, the Hon. Bette Stephenson, then Minister of Labour, noted that union members had expressed satisfaction with the company's progress in almost all inspections since July 1977.

Conditions were expected to improve in the new plant planned for 1979, as the dumping, mixing and pressing processes were to be isolated. As well, an effective exhaust system was planned. However, asbestos dust was a continued problem, partly because of start-up problems.

The Occupational Health and Safety Act came into force in October 1979 and in November, the first refusal under s.23 of the Act occurred, involving 100 people. Dust was noted by the inspector but, so too, was the provision of adequate dust masks. An order to provide adequate ventilation was nonetheless made and employees returned to work. The problems were due, in part, to the move to the new plant prior to completion of the central exhaust system and automatic feeding system.

Further work refusals occurred in January and February, and on March 11 and 12, 1980. All were related to asbestos dust. The March walkout led to a serious confrontation. A number of day shift workers refused to work because of dust conditions. The refusal was resolved, with a Ministry inspector, at the end of the shift. Twenty-three workers on the second shift refused to work. When their complaints

were investigated, no contravention of the Act was found. They returned to work briefly and then left before the end of the shift. Six workers on the third shift also refused to work. The 29 employees were subsequently suspended for two weeks, leading to complaints before the Labour Relations Board. A settlement with regard to the discipline was later made with the union. In these refusals, no contraventions of the Act were discovered at the time of inspection. However, air samples taken in January and February 1980 did show eight of sixty-five personal samples still above the guideline. Admittedly, these were in areas where permanent ventilation had not been installed and respirators were provided.

The company has since taken extensive measures to improve dust levels, as will be discussed below, along with the collective agreement and the joint safety committee.

Collective Agreement Provisions

The provisions in the 1978-80 collective agreement pertaining to health and safety are quite detailed, elaborating and building on the legislated rights. For example, the company recognizes a union safety and health committee, and recognizes a right to time off to transact safety related business. There is provision for a joint health and safety committee to meet monthly (instead of quarterly, as in the Act), and to make a monthly inspection. (That system has now been changed by agreement because there are three plants in the bargaining unit, and it has been agreed to have one committee for each plant). Special meetings can be called by the union or company, and the union has used this provision twice.

There is a provision for notice to the union of the introduction of new chemicals, solvents and compounds. Information is to

be provided with respect to the hazards and required precautions. Wherever chemicals are used, the company is to provide showers and free coveralls.

The company is also obligated to pay for all protective devices and to discuss the introduction thereof in advance with the union health and safety committee. As a consequence, employees are provided with respirators, with several models to choose from. The respirators are compulsory only in one area of the plant, but approximately 20 employees wear respirators elsewhere by choice and these are company-provided. The company also pays for safety shoes and safety glasses in accordance with a formula in the agreement. It provides work clothing and laundry service therefor.

The agreement also includes a provision dealing with unsafe work. An employee who believes his working conditions are unsafe or unhealthy can file a grievance at Stage 2 of the grievance procedure, with preferred handling assured, or he can seek relief from his job. His earnings are protected if he has acted reasonably in seeking relief.

In addition, the company has agreed to provide up to 60 days of paid leave to the bargaining unit for union education. This 60 days is apparently spread over the two years of the agreement.

Finally, there is provision for shifting workers unable to perform for medical reasons, with their rate of pay retained. There have been no claims related to asbestos, and there has been no successful workers' compensation claim for asbestosis from this plant.

The language in this collective agreement is much more elaborate than that found in the 1976-78 collective agreement. There was a provision for a joint safety committee with power to inspect unsafe equipment when questions about its condition were raised. As well, the company agreed to pay a percentage towards safety shoes.

The company agreed to the expanded collective agreement provisions, according to a spokesman, because the proposals were consistent with the company's philosophy of health and safety at the time of the proposal and nothing would be achieved by resisting.

Company Responses

The company appears to have made significant efforts to improve workplace conditions in its new plant. A full-time manager for health and safety was added to staff in December 1979. A new plant manager with an engineering background was also hired.

The company now has a medical service as well, with two full-time nurses and a plant physician two days per week. The doctor does a medical examination and pulmonary function test before new employees are hired.

The company has made extensive investments to improve safety and health, including a central exhaust system, a Hi-Vac system for ease of vacuum cleaning, complete isolation of pre-form presses, shower facilities and double lockers for employees, and a training room equipped with audio-visual aids. There are plans to develop information programs on asbestos and a course for fork-lift truck operators.

The aim is to have all processes involving loose asbestos fully automated, but at present technological problems have prevented

the final stage, the use of a bag-ripper. It was suggested by management of the company that the present plant is in the forefront of dust control, and that certified has had to develop and design new processes and equipment to meet stricter standards of hygiene.

The company at one time over the last two years employed an industrial hygienist to carry out monitoring and air sampling, but is currently without that service.

There appears to be much greater willingness by management to reveal information to the union and workers than there was four or five years ago. Joint health and safety committee minutes are posted, as are inspectors' reports (required by OHSA) and air quality assessments (not necessarily required).

The company bans smoking or eating in the plant area and has posted large signs to that effect, also stating that asbestos is a health hazard. The fact that asbestos is a health hazard is also stated on the application form and in the Employee Conduct Guidelines given to new employees. The fact that this information is in English only may reduce the efficacy of the warning, as about 40% of the workers are not functional in English. The ethnic makeup includes Spanish, Italian, Chilean and Vietnamese workers.

Breach of the no smoking or eating rule or failure to wear respirators in the one area of the plant where they are required is disciplinable conduct.

Joint Health and Safety Committee

The committee, co-chaired by the plant manager and a union representative, meets monthly. It proceeds according to an agenda

drawn up by the union in advance. The monthly inspection of the workplace is scheduled before the meeting, which provides topics for discussion. The tour is made by the three worker representatives with the plant foreman.

The committee business is organized according to a fixed plan. Each item of old business is numbered and progress on its resolution is noted. New items of business are numbered and added. It is interesting to note that concerns about asbestos dust were raised at health and safety committee meetings before the November, 1979 and March, 1980 walkouts.

Company officials expressed some concerns about the efficacy of the joint committee in the past, particularly when union stewards or officials were on the committee. It was felt that health and safety issues would then be pressed for bargaining leverage. The present committee was described as co-operative, although there are communication problems between the health and safety committee representative and those on the shop floor. This is due in part to the language problems mentioned above.

From the union side, concern was voiced about company delay in acting on some matters. As well, it appears that some workers are reluctant to come forward with complaints for fear of causing problems. This was thought to be especially true of Spanish speaking female employees.

Conclusion

Both union and company representatives discussed the problem of worker compliance with the safety mechanisms in the plant. Over the years, some workers have been reluctant to wear respirators;

they do not use the shower system; nor do many change from their work clothing before leaving. (A new company rule requiring changing will meet this problem.) The company mentioned problems of worker resistance to personal monitoring of asbestos dust and even interference with exhaust systems.

The union explained that the reluctance to shower and change resulted in part from the workers' desire to get away from the workplace. Rather than wait to shower and change, people preferred to go home. As well, it was felt that workers were not adequately informed of the hazards of working with asbestos and many saw no possibility of harm from their actions. Others just do not seem to care about possible problems.

It may be that the lack of information in the worker's first language, as well as a more formal training program dealing with the hazards of asbestos, would change some attitudes.

APPENDIX E

CASE STUDY - INTERNATIONAL ASSOCIATION OF HEAT AND FROST INSULATORS AND ASBESTOS WORKERS

Local 95 of the International Association of Heat and Frost Insulators and Asbestos Workers provides an interesting subject for a second case study. This local, made up of 907 mechanics and 77 helpers, operates in the construction industry and, for this reason alone, provides a good contrast to the manufacturing activity of Certified Brakes. It is also an interesting case study because of its history. The Asbestos Workers Union in the United States was the subject of much of Dr. Irving Selikoff's early research work on the effects of asbestos on health in the late 1960's. For this reason, it was anticipated that this union would be actively engaged in collective bargaining over health issues.

It should be noted that the union's work with asbestos has fallen off over the last decade. No longer is asbestos used for insulation, having been discontinued in the early 1970's. At present, exposure to asbestos largely occurs in demolition and remodelling of older buildings and in maintenance of old insulation. Some of this work is done by nonunionized labour or in-house employees in other unions.

The collective agreement provisions with regard to occupational health and safety are not detailed. The union is engaged in province-wide bargaining, as required by the construction industry provisions of The Ontario Labour Relations Act, R.S.O. 1980, c.228, pertaining to the "industrial, commercial and institutional sector" of the

construction industry (s.137). It has entered two collective agreements with the employers' bargaining agency, the Master Insulators' Association of Ontario, Incorporated -- a maintenance agreement and an ICI (industrial, commercial and institutional) agreement. The maintenance agreement covers maintenance, repair and renovation work.

The maintenance agreement states in its preamble that employees shall have the protection of all existing federal, provincial and local laws applicable. Article 22 deals with first aid and safety and protective clothing. The company or owner is required to provide first aid service in accordance with applicable federal and provincial laws. The employees are bound by the safety rules and regulations established by the company and owner, to be published at conspicuous places throughout the plant. The company is to provide safety equipment and clothing required by these rules. The company agrees to provide protective clothing in exceptional working conditions and, on request, to provide up to two pairs of coveralls to long term employees each year. There are no negotiated institutions such as health and safety representatives or a right to refuse hazardous work.

The ICI agreement, dealing with application of insulation in construction, provides in article 3.08 that "all work shall be performed, and equipment operated according to accepted safety conditions which must conform to the applicable Provincial and Federal Regulations, Acts and laws." Such a provision, by incorporating the legislation, would allow an employee to grieve because the employer failed to observe the legislation. The

agreement also requires the employer to provide protective clothing on abnormally dirty or corrosive maintenance, revamp and repair work.

There is thus little in the collective agreements related to health and safety, in contrast to the Certified Brakes collective agreement. One union spokesman stated that health and safety was a non-issue in collective bargaining, with no employees really caring about the issue until they or someone close was affected. One might also speculate that the union chooses to lobby for legislative change to impose minimum standards, so as to avoid imposing costs on the employer in the unionized setting, which will lead to an unfavourable competitive position with nonunionized employers.

There appear to have been information problems about the asbestos hazard as well. Another union member stated that he had not learned about the dangers of working with asbestos until he attended an international union meeting in the United States in the early 1970's, despite many years of work with asbestos. There is still no concerted effort by the union to educate new members about asbestos hazards, partly because the use of asbestos has fallen off. Apprentices are told that asbestos is dangerous, particularly to smokers.

The union seems to rely largely on government standard setting and enforcement as means of protection, and they are lobbying for new regulations for construction based on procedures or methods of work, rather than exposure limits. They co-operate with the Chest Disease Survey of the Ministry of Labour as well.

Construction projects are not subject to the joint committee system under The Occupational Health and Safety Act. Rather, on construction projects where twenty or more employees are regularly employed, an employee health and safety representative must be selected by the workers (s.7(1)). He has the right to inspect the physical condition of the workplace, not more often than once a month, and to identify hazardous situations and make recommendations thereon to the employer, workers and trade unions (s.7(6),(7)).

There can be administrative problems in selecting a health and safety representative on construction sites: often there are several unions at the worksite, with some there for a relatively brief period. A health and safety representative should ideally be someone with some continuity at the project. There may be problems in recognizing hazards involved in other trades, although the Construction Safety Association provides training courses for workers at night. There may also be cost considerations affecting an employee's willingness to participate as a representative. It was suggested that some small employers are reluctant to have one of their employees serve as the project representative, as his time would be billed to his employer, rather than shared among all employers at the project. This has led to pressure for some employees to avoid participation.

Overall, there is very little bargaining over health and safety issues by Local 95. The union has concentrated its efforts, it seems, in developing health information, by co-operating with Dr. Selikoff in investigating the causes of death of members (International Association of Heat and Frost Insulators and Asbestos Workers, Submission, #63, 1981).

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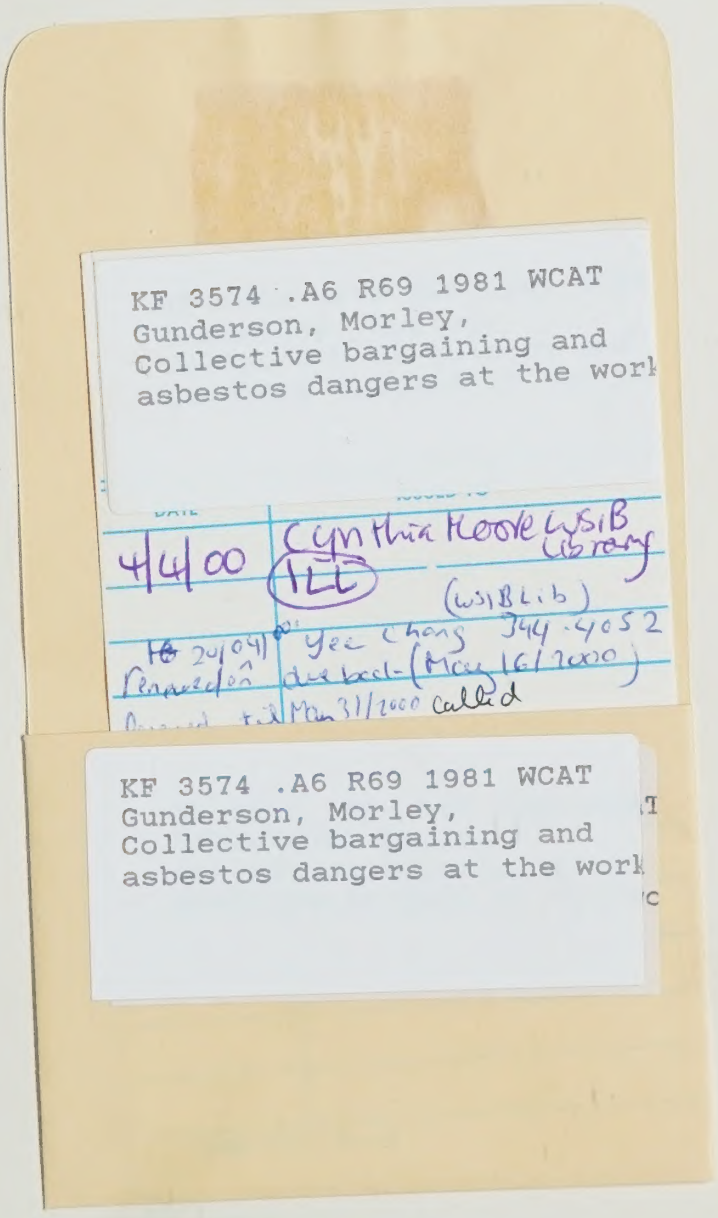
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